COUNTWAY LIBRARY
HC 4W61 $

SIR VICTOR HORSLEY


Digitized by the Internet Archive
in 2025

https://archive.org/details/sirvictorhorsley0000step_o6s1



From a photo by Mr. G. C. Beresford

SIR VICTOR HORSLEY.

SIR VICTOR HORSLEY

A STUDY OF HIS LIFE AND WORK

BY

STEPHEN PAGET

Misit de summo, et accepit me:
et assumpsit me de multis aquis.

My sword I give to him that shall succeed me in my pilgrimage,
and my courage and skill to him that can get it.

ILLUSTRATED

NEW YORK
HARCOURT, BRACE AND HOWE
1920

Printed in Great Britain

L. Ea. 493.

BOSTON MEDICAL
JUN 3 - 1937
LIBRARY

TO LADY HORSLEY

PREFATORY NOTE

By Lady Horsley

When at the age of fifty-nine Victor Horsley died, struck down by the furnace heat, the mental misery, and the overwork of Mesopotamia, he was still in the fulness of his powers. These he had planned to use, on his return home, for the promotion of the social reforms in which he was most keenly interested, the health, housing, and land of the people. He intended again to offer himself for Parliamentary election and, as the letter from Huddersfield quoted in the Memoir shows, he would probably have been returned to Parliament by a constituency choosing him as their representative for his personal qualities and his high ideals.

He belonged to a long-lived family. He was himself strong and vigorous. He would under normal circumstances probably have lived to old age, and so long as strength of mind and body remained to him it would have been used in attempting to further the interests of the people. And he would have furthered them. He possessed in a high degree the power of influencing other men, and not only those of his own age but also the young, a much rarer gift. They felt that he was not of the past or even of the present but of the future, and that his leading was always onwards and upwards. When he joined a cause, his name at once added strength to it. It could not be merely sentimental, or wanting in justification, if it had attracted to it so manly a man and so keen an intellect. Thus he would have been a teaching and inspiring force in the country, and he has left a void which so far no one has come forward to fill.

It seemed wrong, when all this vitality and power was so suddenly arrested, that no effort should be made to

set forth his life and labours as an incentive to others to take up the work he had too early laid down.

The task however of preparing such a record was a very arduous one, for probably few men who have done so much have written so little, and it needed all Mr. Paget's literary powers and enthusiasm for his theme to overcome the difficulties which confronted him.

The sincerity of that enthusiasm no one can doubt who read his words when the news came from Amarah in 1916. Yet it would be hard to find two men of goodwill more widely separated in their mental attitude than the author of the Memoir and the subject of it. They differed in religious convictions, in politics, in social ideas, in their ways of approaching men and matters, and these differences constantly make themselves apparent in the book and in the critical attitude of the author.

Nevertheless no attempt has been made to suppress or soften this. Those who regard Victor Horsley's memory with most reverence and most affection are well content to let his life speak for him and to let those who read it judge for themselves. The object of the book will have been sufficiently attained if it serves to preserve an influence that was never more needed than it is now at this most critical hour.

June, 1919.

CONTENTS

PART I

SCIENCE AND PRACTICE

CHAP.		PAGE
I.	From 1857 to 1873	3
II.	From January 1874 to September 1878	15
III.	From October 1878 to May 1881	27
IV.	From 1881 to 1884	39
V.	The Cure of Myxœdema	54
VI.	The Prevention of Rabies	68
VII.	The Localisation of Function in the Brain	90
VIII.	From 1885 to 1887	114

PART II

SCIENCE AND PRACTICE. PROFESSIONAL POLITICS. PUBLIC LIFE

I.	From 1888 to 1892	133
II.	From 1893 to 1898	149
III.	From 1899 to 1906	167
IV.	From 1907 to August 1914	186
V.	Professional Politics	212
VI.	The Fight Against Alcohol	230
VII.	Brotherhood Addresses	255
VIII.	Private Practice. Home Life	263

PART III

DURING THE WAR

CHAP.		PAGE
I.	London. Wimereux	285
II.	Egypt	295
III.	India. Mesopotamia	313
	Published Writings	341
	Index	351

LIST OF FULL-PAGE PLATES

Sir Victor Horsley . . . . *Frontispiece*

Mr. and Mrs. J. C. Horsley in the Dining-room at Willesley . . . *facing page* 6

Victor Horsley at the age of Eleven . . „ 10

Myxœdema before Thyroid Treatment . . „ 54

Same Patient, after Treatment . . . „ 54

Pointed (Service) Bullet, ·22 calibre. Cast of Effect in Clay . . . . . „ 155

·310 Soft Lead Bullet. Cast of Effect . „ 155

The Operating Theatre, Queen Square, 1906 . „ 184

Horsley's Room, University College . . „ 200

Drink Shops, Southwark, 1914. Tabard Street District . . . . . „ 230

Sir Victor Horsley . . . . . „ 285

Sir Victor Horsley's Grave at Amarah . . „ 338

LIST OF ILLUSTRATIONS IN THE TEXT

PAGE

Diagram showing the Influence of Muzzling over Rabies 87

Diagram of the Dog's Brain, showing the five 'Motor Centres' localised by Fritsch and Hitzig, 1870 93

Motor Region of Cerebral Cortex (external surface) 98

Motor Region of Cerebral Cortex (mesial surface) 99

Drawing made during Experiment on the Motor Region of the Cerebral Cortex of an Orang-Outang 108

Facsimile of Horsley's Rebus 129

Sketches in Letters from France and Mesopotamia. 292, 320, 321, 324, 325, 327, 330, 332, 333, 334, 335

TO

WILLIAM W. KEEN, M.D., LL.D.,

EMERITUS PROFESSOR OF SURGERY, JEFFERSON MEDICAL COLLEGE; LATE PRESIDENT, AMERICAN PHILOSOPHICAL SOCIETY.

DEAR DR. KEEN,—When this book was published in England, Lady Horsley let me dedicate it to her. In America, it dedicates itself to you, of its own accord, without asking my leave. Your name and your work are familiar to us over here; you knew Victor Horsley well: you and he stood side by side for the advancement of surgery: and you are a true lover of England. No wonder that the book takes this opportunity of dedicating itself to you: and I admire the wisdom of its choice.—Yours very truly,

STEPHEN PAGET.

LIMPEFIELD, SURREY,
December 1919.

PART I

SCIENCE AND PRACTICE



From 1857 to 1873

It was part of the happiness of Victor Horsley's life that he was of good birth and had a family record to be proud of. He was a son of John Callcott Horsley, the artist, and a grandson of William Horsley, the musician. William Horsley married a daughter of John Wall Callcott, the musician, brother of Sir Augustus Callcott, the artist. One of William Horsley's daughters married Isambard Brunel, the engineer: another married Dr. Seth Thompson: another, Miss Sophy Horsley, a woman of keen intellect, and a notable pianist, was a great friend of Mendelssohn; he dedicated some of his works to her.

Victor Horsley's mother was a sister of Sir Francis Seymour Haden, the surgeon and artist who was founder and first President of the Royal Society of Painter-Etchers. She was a daughter of Charles Haden, a surgeon in good practice in Sloane Street: he was a great friend of Miss Austen. He died young, but not before he had made a name in his profession. He was a son of Thomas Haden of Derby, one of the foremost surgeons in the provinces. There is a well-known etching of Thomas Haden, by his grandson Seymour Haden, after a portrait by Wright of Derby.

John Callcott Horsley was born in 1817, in Brompton. Six years later, the family moved from Brompton to the house which now is 128 Church Street, Kensington, but then was 1 High Row, Kensington Gravel Pits. This was Mr. Horsley's home in London for eighty years, from 1823 to his death in 1903. Near the end of his long life he wrote his Recollections of a Royal Academician. The surroundings of the house have changed for the worse, but it still has an

air of quiet dignity, and there is a garden behind it, and Kensington Gardens and Kensington Palace are not far off. He could remember the Princess Victoria riding daily past the house :

> It was a charming sight to see them scampering up Church Lane at a hand-gallop, passing the woodland Campden Grove, past old Campden House and its entrance-gates—and the Princess, who, of course, led the cavalcade, with a cool and experienced equerry at her bridle-hand, pulling up at the turnpike gate, which barred the road, just opposite the stable gate of No. 1 High Row.

He was a student at Sass's Academy when he was only thirteen years old. In 1831, he became a Royal Academy student. In 1845, he was chosen to paint two of the wall pictures in the new Houses of Parliament. He was elected A.R.A. in 1855, and R.A. in 1864, and was Treasurer of the Royal Academy from 1882 to 1897. His early picture, 'Rent Day at Haddon Hall,' brought him praise and success : he loved to study Haddon Hall, and it influenced much of his work. One of his pictures was placed in his lifetime—a very exceptional honour—in the National Gallery. And he did a memorable service to art in England, for it was he, more than anybody, who organised the Winter Exhibitions of Old Masters at Burlington House. He was a member of the Exhibitions Committee for twenty-seven years ; and he delighted in the duties which it put on him. He had to visit private collections, persuading the owners of masterpieces to lend them, and refusing all that was not worth showing ; and he made the Winter Exhibition the chief event of the London year for lovers of good pictures.

He was twice married : his first wife was Miss Elvira Walter ; three children were born to them. She died of consumption ; and her children did not long outlive her : all three of them died of scarlet fever. In 1854, he married Miss Rosamund Haden. Seven children were born to them : Walter, Hugh, Victor, Emma, Fanny, Gerald, and Rosamund. Two of them, Hugh and Emma, died in childhood of scarlet fever. Gerald, the architect, died in July 1917. The members of the family now are Colonel Walter Horsley, the

artist, Lady Whitelegge (Fanny), and Mrs. Francis Gotch (Rosamund).

Victor was born on April 14, 1857. It was the day on which the Princess Beatrice was born; and the Queen, who had kindly regard for the family, noted the coincidence, and sent word that she wished him to be named after herself. He was presented to her, at a very early age. Victor Alexander Haden Horsley—but there never was a man who made less use of a superfluity of Christian names. From six to eighteen, he gradually reduced them: Victor A. Haden, Victor A. H., V. A. H. By the time when he was twenty-one, the A and the H were gone.

In 1858, Mr. Horsley bought a country-house, Willesley, near Cranbrook, in Kent. He writes, in his Recollections, of the beauty of the place:

> Where 's Cranbrook? I remember saying to old Tom Webster one day, when he told me he was going down into Kent to see the young artist, F. D. Hardy, who was painting the cottage interiors in the neighbourhood. . . . One of the most picturesque old houses in the High Street became Webster's studio, when, at a later date, he lived no longer in the farmhouse, but in a square and substantial red-brick house in the town. Tempted by Webster's account of Cranbrook, we went there, and often occupied lodgings, till the chance came of buying an old house standing about half a mile out of the town on a hill.

The house was enlarged and decorated by young Mr. Norman Shaw. Oak panelling, sixteenth-century stamped leather from a French chateau, curtains from a palace in Venice, were bought or given for its adornment:

> It was Norman Shaw himself who first drew bold designs on the soft, new plaster of the ceiling, and who was delighted to find his ideas ably and conscientiously carried out by the rustic 'Men of Kent,' the Cranbrook workmen, with a skill and verve that could never have been found in Londoners of the same calling. He made the delightful design on the gable of the peacock, and the familiar words, 'Except the Lord build the house, their labour is but lost who build it.'

This pleasant country house is still in the family: Colonel Walter Horsley lives there. It gave the children all that

they could desire. They had also, on this or that occasion, a holiday at the seaside ; and their mother once took them to Boulogne, but the lodging-house was so dirty that she whirled them back to England. They did not lose anything : no sensible child, having Willesley to play with, would care to play with Boulogne. After 1873, the house in Kensington became home to them, and Willesley was kept for holidays ; but up to 1873, they were always in the country.

The Recollections of a Royal Academician are good reading; but it is an old man's book: it does not say much about the home life at Willesley in the earlier years. Mr. Horsley was a man of restless energy, impulsive, hot-tempered, but generous and quick to make amends. He worked hard, and was intolerant of any break in his work. He loved company, and was bored by solitude. His letters to his wife are full of weathercock changes of thought, sharp little criticisms, and spurts of slang and chaff : he tells her all about home and the children, what they are all doing, how he is getting on with his work : for instance, what a friend has paid, at a sale, for one of his pictures—' An old stoopid : I 'd have painted him a much better picture same size for the money.' Over small grievances and small domestic perplexities, he was fidgety : he liked to arrange and plan everything, and to have it just so. Over greater troubles, he was more patient. In religion and in politics, he stood on the old ways of unquestioning faith and of loyalty to the Sovereign. His friendships were in art and music, not in politics, nor in science : he was averse from the revolutionary spirit which was refashioning the world all round him : neither Huxley nor the Pre-Raphaelites found their way to him. But that which told against his authority among artists was not his dislike of Pre-Raphaelitism, but his dread of the influences of the French Salon, and his opposition to the study of the naked model. He said what he thought of it all, in 1885, in the Times ; and there was a good deal of rather angry laughter over that controversy.

It would be waste of time to try to decide what in Victor was Horsley and what was Haden. He got his good looks



MR. AND MRS. J. C. HORSLEY: THE DINING ROOM, WILLESLEY.

from his father. If we may go by the evidence of hands, both families were represented in him. The Horsleys were proud of their hands, the long slender fingers and well-shaped nails: the Hadens had square hands, with square nails: as Seymour Haden said of an old portrait, 'That 's the woman who brought the damned ugly hand into the family.' Victor's hand was a blend of the two: it was rather square, but with well-shaped fingers and nails. His mother had a thoroughly Haden hand. She was very skilful and very practical with her hands: for forty years, she made the costumes for Mr. Horsley's models, and she could deal as cleverly with carpenter's tools about the house as with needle and scissors. She was small of stature; busy, strong-willed, capable: as Victor, in the later years, said of her, 'She used to make things go.' She could be rather terrible toward an offending servant or tradesman: nor did the children find it easy, as they grew up, to adapt themselves to her frequent censure. She bore pain and faced operations with extraordinary courage, but was not free from that sort of timidity which then was more common among women than it is now—the fear of dark nights, horses and cows, hansom cabs, and so forth. She had been brought up in France, and mostly had lived in France to the time of her marriage: she knew French history as it were by heart, and all the intricacies of the French dynasties. She was on the alert, even when she was more than eighty years old, over points of history; and her talk with its wealth of memories was of great interest. In society, she liked to keep herself to herself, and did not go out of her way to make new friends: the circle of art and music round her in London was wide enough without that. In all affairs of manner and of conduct, she maintained the high standard of the Victorian Age, and the rigid observance of proprieties; but was none the less independent, and proud of her independence, hating to feel herself beholden to anybody. Toward her husband, she was of one mind with him over the great things, but was more apt than he to leave the lesser things to shape themselves; and he sometimes was vexed that she was so philosophical.

It was inevitable, from the tragedy of his first marriage, that they should be incessantly anxious over their children's health. 'I am sorry for being so fussy,' he writes to her, 'but if I hear of anything being the matter with the children, it is as if a knife were driven into me.' Except for this persistent watchfulness, the children had nothing or next to nothing to complain of. Obedience was expected of them, and they were taught to be content with simple food, and to respect the difference between their parents and themselves; there was not the present equality or pretence of equality; they did not offhand invite their parents to play games and share secrets with them; but they had all the freedom that was usually given to the children of that generation, and more than some children would have dared to ask for. On Sunday—that everlasting test of home life—they had to go to church once, but not more than once; and, by a strange turn of casuistry, were allowed to amuse themselves with drawing but not with painting, because painting was their father's work, and they must not work on Sunday.

Victor's earliest letters, from 1863 to 1868—from his sixth year to his eleventh—are short, objective, and abounding in happiness. They show a quick sense of the beauty of the world, but are neither sentimental nor imaginative. The spelling is remarkably correct: it may have been controlled from above. One or two of the letters are in French; and that so bad that it may have been intentional; but opinions are divided on this point. It is recorded of him, at the age of six, that he asked his governess whether a chair in French were still feminine if a man sat on it.

1863. *To his mother. April* 13. I hope you will come on my birthday and bring me some presents from London. On Sunday we went for a walk, and when we came back we made an old man of sand. Grass is his hair, two lapides for his eyes, a curled piece of stick for his nose, and a straight piece of stick for his mouth. I am going to draw hunting a tiger. *April* 16. I think you will be glad to hear that my cold is better. I had some sugar and a baked apple last night. I have two mountain ashes, some beans and peas in my garden. *April* 28. It is very stormy to-day, and I think there will be

lightning. This morning I gathered a very large violet. We have a great many beans which Jenner gave us. I want to put affectionate now. 1866. *To his mother. May* 1. I hope that you have arrived in London safely with no accident at all. I have done all that I have to do this evening, and, having some spare time, I thought I would write to you. You know the side which I had my swell face, well, on the opposite side I have a gumboil.

1867. *To his father. April* 7. How are you? Have you been to the Academy? Did you get my letter yesterday? Do you know it is only four days to the holidays? We went to Admiral Houston's yesterday. Near their garden (at least it is joined to it) is a little wood full of little paths. The ground there is carpeted with primroses, anemones, blue, white, and purple periwinkles, besides some red primroses. I think it must have been a garden once, but now it is all shrubs, moss, young and old trees. At the bottom of this little road there is a stream. Will you ask Grandmamma for some seeds? *May* 21. How are you? Is the Exhibition a nice one, and are there many pictures? It has been very rainy to-day except this evening. There is a beautiful sunset, it seems quite to gild the dining-room. *Oct.* 30. Have you arrived at London safely? How many students had you to teach to-night? Did you have more than 30 or 40? How old are some of them? Are there any about 20 there? because I want to know. *Nov.* 7. On Monday night we had a dozen squibs, 12 blue lights, 12 crackers, 3 Roman candles, and 18 Catherine wheels. We invited Mr. Garden, the two girls, and Freddy. I bought a dormouse to-day for a shilling, with a cage too, from a schoolboy, he is called Louis Broome. It was not his, it was the eldest Yates, but he owed Broome a little more than a shilling, so I was to give it to Broome. Walter is making a bowsprit and mast to the boat Mr. Paine made for us. He made the body for us, not what Walter is making this evening. Have you gone to the students this week? What sort of model was it? Was it the same one that was there last week? How are you? Will you ask Aunt Sophy if she has any stamps for us. An answer is requested. *Dec.* 15. I have finished the drawing for Mama on Christmas. We have been examined in English and Roman History, in Geography, and Greek. We are going to begin Bible Examination to-morrow. We begin our holidays on Thursday. . . . Did you hear the Fenian explosion? I will draw you a picture.

1868. *To his father. From Broadstairs.* Mon cher Papa Johannes. We have bathed twice and are learning to swim. The man is a jolly old fellow, there is a nice lifeboat and jetty, and there is a beautiful little boat. *Sept.* 4. *From Ramsgate.* We went to Pegwell to-day and they were firing off the

> cannons at a target, I liked it very much. You could hear the ball as it went along. They made some very good hits, one went clean through the canvas twice while we were there, and knocked away the right pole. *This* is where they fired from : the Range was a thousand yards. We stood at A.

The children had good friends of their own age, in or near Cranbrook : the sons of F. D. Hardy, the artist ; and the O'Neills, cousins and near neighbours ; and the Vizards at Sissinghurst, a large family, the girls all set on earning their own living ; one of them, in 1873, was governess at Willesley. The liberties of Sissinghurst were an escape from the restraints of Willesley, and the Horsley boys used to go there on Saturday half-holidays. Mrs. Carter (Miss Jessie Vizard) remembers them well. It seems that Walter was her favourite : Gerald used to offer his heart and hand in fantastical style to each of the young ladies in turn : Victor was full of fun, laughing and skylarking, with little fugitive moods of quietness. A letter from him to her, when he was thirteen, and she was teaching some children in London, contains a very good sketch of her and them groping their way through a London fog. Her sister, Mrs. Hubbard, writes :

> I knew Victor, first of all, when I was seven and he was nine years old : we were tremendous friends in those days. He and I used to go about together, getting rabbits' food, hiding together in our many games of hide-and-seek, and generally contriving to do things together. Later, we used only to meet in the summer holidays, and then I connect him with teaching us tennis, but chiefly with a game which we invented, all of us, called ' ghosts ' : a most blood-curdling form of hide-and-seek, to be played in the evening, preferably by moonlight.

But Victor's chief delight at Willesley was in the skittle-alley which Mr. Horsley had added to the house. The boys played the nobler form of the game, throwing the discus, the big wooden ' cheese.' Victor's highest score may still be seen on the wall, and the black cat which he painted as a target for pistol-practice. He would swing from a horizontal bar by one hand, and fire with the other ; not without some danger to his little sister, Rosamund. She writes of him :



VICTOR HORSLEY.
AT THE AGE OF ELEVEN.

I wonder how old he was when this, which I have heard my father relate, happened. They were riding together, he on a small pony by the side of my father's big mare; and my father asked him what he would like to be when he grew up. 'A cavalry officer,' he said. 'No, my boy, I couldn't afford that: how would you like to be a doctor?' 'Oh, all right: plenty of riding and driving and cutting about.' I think that this was very indicative of his then state of mind, for he was a typical country boy: not particularly brilliant at school, keen on birds'-nesting and bathing and adventures in woods and fields, always in scrapes at home and abroad, trespassing after birds' eggs and fleeing from gamekeepers: wrapped up in his silkworms and dormice, and in the little mechanical devices connected with them.

Later, the subject was naturally resumed. On this occasion he said that he would be an artillery officer, and was again told that it could not be afforded. He then said that he would be a doctor, on this condition, that he should be a surgeon, not a physician. My father accepted this decision, and promised him a set of scalpels for a birthday present.

We lived only half a mile from Cranbrook, with its Elizabethan grammar-school, where the boys went, and my impression is that Victor was in almost perennial hot water. Once, at the midday meal, my father had been reading him a long and serious lecture on the enormity of his conduct in general, with special reference to his destructive proclivities, to which he listened respectfully—probably at the same time bending back, under the tablecloth, the prongs of a fork, to see how far they would go without snapping. Then suddenly he said cheerfully, 'All right, I 'll try to remember, but I must be off to school now'—jumped up, caught his foot in the tablecloth, and dragged half the glass and china to the floor. My father sank back in his chair, arms thrown aloft in half-humorous anger. It was a good illustration of what he was often saying, 'The essence of mischief is bottled in a boy.'

Victor was always daring, rather reckless, and full of courage. I remember sitting with my mother one afternoon, and he came into the room, from playing hockey, with his face covered with blood and one eye apparently destroyed. 'Can you see anything in my eye?' was his characteristic question.

I think that, so soon as he made up his mind, in consequence of my father's suggestion, to be a medical man, he started investigating the interiors of birds and animals, for I was very early fascinated by watching the dissection of a starling on the table in the summer-house, and later of a mole.

After all, there is nothing unusual in a boy making up his mind to be a doctor. Besides, the family was closely associated with the profession. Haden of Derby, Charles Haden, Seymour Haden, and Seth Thompson, all belonged to it; and the adventures of another member of the family, Isambard Brunel—not as a surgeon, but as a surgical patient—had been talked of far and wide. He had been conjuring with a half-sovereign, pretending to swallow it, and it had slipped into his air passages: he had undergone tracheotomy, had devised a revolving table on which he could be suddenly turned head downward, and after many days had coughed up the coin. With these associations, it was natural that Mr. Horsley should think of having a son in the medical profession. It was no less natural that Victor's first thoughts should be of the Army. Walter and he were always drawing pictures of soldiers in action. The children were allowed any amount of pencils and paper; and Walter's early battle pieces are admirable. Later, they joined the Volunteers, and worked hard in that nationa service. Failing the Army, Victor was willing to be a surgeon. At the most, he was not more than fifteen when he made his choice: for his father writes, in September 1872, 'Vic has to attend a class from two to three, arranged on half-holidays especially for those with Victor's future views.' He found, among his father's books at Willesley, Albinus's Anatomy; and the plates were of great interest to him.

By June 1873, he started to work with the microscope. There is a letter to his mother, June 22, 1873, in French, more or less wilfully bad: no boy of sixteen could write such French with perfect seriousness. The letter recalls exactly the beginning of microscope work in those days:

> J'espere que vous êtes tres bien (ou avez belle santé). Vous savez que les livres de Mr. Macaulay etaient 10 francs, et que j'eu dans la Bourse vingt et cinq francs. Je va a Mr. Clarke's Samedi le 21^{me} et il me donne du thé et me preté un livre de la preparation des objets pour le microscope. Mr. Clarke dit qu'il suit necessaire que je l'achete. Je veux que Gualtier aille à Mr. Baker No. 244 High Holborn quand il lui plait et acheté ces articles suivantes.

½ oz. de ' mixed ' circular thin covering glasses.
12 slides, rough edges.
Une petite bouteille du ' Canada balsam.'
Une ditto de gold size.
Une ditto d'Asphalte.
Trois tubes de verre.
Une petite syringe.
24 ivory rings (comme on dit) des ' mixed ' sizes.

Il ne sera plus que dix francs s'il est tantôt, avec le prix de livre qui est 2s. 6d. (On Preparing and Mounting Microscopic Objects, by T. Davies. Published by R. Hardwicke, 192 Piccadilly.) Mr. Baker est le plus ' cheap ' et le meilleur, comme Mr. Clarke dit.

La coste des livres de Macaulay subtracte de la monnaie dans la Bourse will leave 15 francs. Si la coste des articles nommés n'est pas egal à ce prix (15 francs) je veux que le remainder be sent, car il faut que j'ai fit une table de verre (turn-table) que Mr. Clarke dit etre indespensable. Avec mes plus meilleurs regards à tous, Je ramener votre plus affectionate fils Victor A. H. Horsley. J'ecri cette lettre avec le main courant.

In December 1873, he left Cranbrook School: he had been there since 1866. In Victor's time, it had passed through a period of depression, and was going up rapidly in numbers, under its new head master, Dr. Crowden: who remembers Victor, in 1866, as a ' small chubby-faced boy, who on wet days came to school with his brother Walter in a covered donkey-cart. He was not greatly distinguished in his school work, but he obtained his moves from form to form with creditable regularity.' The new school buildings are later than Victor's time: the present ' Big School ' was built in 1884-85: the old ' Big School ' is now the School Chapel: it used to be curtained off into classrooms, and Dr. Crowden used to take the sixth form, at the upper end of the room. A narrow wooden staircase leads up to it from the old playground, and on this staircase Victor had a fight with one of the older boys, who was bullying a new boy. In 1866, there were only forty boys. He of course was a day boy, and went home for the midday meal. He had not the present advantages of Cranbrook—the new buildings, the armoury for the cadet corps, the laboratories and lecture room for chemistry and physics. But he had the country-

side for a playground, and the skittle-alley for a gymnasium, and the rifle butts for an armoury; and he could afford to wait for a laboratory.

He was in the sixth form on the classical side when he left the school. He had gained some prizes, in classics, in drawing, even in French: these last might well have been bestowed elsewhere. He was fond enough of the school games, but was not very skilful at them: he greatly enjoyed football and hockey, but cared little for cricket. Greek and Latin, as languages, never got much of a hold on him: but his reading of the classics helped him toward that love of archæology which was so strong in him all his life. But Cranbrook made no deep impression on him, nor he on Cranbrook. He ought to have gone to some great public school far from home. The day boy's life, the monotony of the half-mile four times in every twelve hours, the same setting of his work and play, year in year out—these were not good enough for him: he needed to be sent right away, into wider experiences and statelier traditions, under such discipline as neither Cranbrook nor Willesley could give him. He came near to having this advantage, but never had it. There is a letter from his father to his mother, August 25, 1872, saying that 'the fever,' *i.e.* scarlet fever, had broken out again in the little town:

> This brings me to another important consideration that has been simmering in my mind, for some days, about Victor. I don't at all like the idea of his living *anywhere* in our filthy town. I think the school has done very well up to the present time, but I think we might do better for Vic. for the next year and a half, by sending him as boarder (which he must be wherever he goes when we are away) to such a school as Charter House. We know that it is now in a splendidly healthy position, newly built with every modern appliance. I know Haig Brown, the Head Master, and Vic would have his friend Daldy to introduce him. Moreover a year or two at such a good *public* school might be of much service to him. . . . Think of this. I would write and find all particulars as to cost, etc. As long as that town of Cranbrook remains as it is, undrained and with such a bad water supply or supply of bad water, I should never be easy to have any one I cared for *in it*. Daldy, having done so well and being so good a mathematician, might be a great help to Vic.

II

From January 1874 to September 1878

In January 1874 he matriculated at the University of London: he was prepared for examination by Mr. (Sir Philip) Magnus. After it, he set to work for his preliminary scientific examination, attending lectures at University College, and reading at home, and with Mr. Magnus: two other students, William Pasteur, now Senior Physician to the Middlesex Hospital, and Alfred Lendon of Adelaide, were his fellow pupils. Dr. Lendon remembers him well at this time, a tall, manly youth, with a very delightful smile:

> He had a strong sense of humour, which was very congenial, for we were both staunch admirers of Dickens: he was overflowing with the *joie de vivre*: he had been brought up to enjoy country life. In conversation, he was inclined to be assertive and disputatious: 'Oh rot!' was a very favourite expression: he was always distinctly dogmatic in his views: if sarcastic at times, there was no venom introduced with the sarcasm. His way home from Mr. Magnus's house passed my way: he walked with a long stride, and it was rather an effort for me to keep up with him.

Sir Oliver Lodge, who in 1874 was an assistant teacher at University College, writes of him:

> It is very surprising that I remember him so well as a student, but I do, although he was only studying Physics for one year in the usual fashion prescribed for a Medical University Course. But he made an impression on me from the first. I remember even where he used to sit, in the front row on the left-hand side of the lecture table in the old Physics Theatre above the Botanical Theatre at University College. He and another man, whose name I do not remember, used to sit together, and were easily first in marked ability. For though the Course was only the Junior Physics appropriate to the Prel. Sci. M.B., yet I perceived that he

was one of those men who would do, in a first-class manner, whatever they undertook.

The Course was not mine, it was given by Carey Foster; I was only a senior student employed by him to correct the exercises and to go about among the students helping them to do their problems or criticising the way in which they were done. Consequently I saw more of the individual men than if I had been the Lecturer.

I was the Lecturer in later years, but not in 1873-75, and it was in one of the quite early years (probably in 1874) that I first remember Horsley. I cannot tell you anything in detail about him, but the fact remains that no student at that period made so distinct an impression on me, and when he came out as a brilliant surgeon later on, it was with pleasure that I remembered my first acquaintance with him.

In holiday time at Willesley, in and after 1874, he worked with Dr. Joyce of Cranbrook; it was pleasant, informal, discursive work, and it gave him his first insight into general practice. Dr. Joyce writes:

He worked with me for a few months after leaving Cranbrook School: we chiefly did microscopic and biological work. I still have some slides which he put up: one is a section of the parietal bone of a stag, another is a section of fossil wood from Kentish ragstone, which he ground down. . . . When we had nothing better to do, we used to amuse ourselves by overhauling the dumps of Kentish ragstone at the roadside, in search of fossils, and one day, to his great delight, we came across a nest of oyster-spat: the tiny oysters were about one-eighth inch across: he carted them off for the museum which he was then beginning to form. The last work I recollect his doing with me before he began practice in London, was on a poisoning case: a woman had given her husband and her child something that she thought was yellow sulphur: both died, and I had charge of the case. He rigged up a Marsh's apparatus, and got a deposit of metallic arsenic from the contents of the man's stomach. We found out afterwards that he had been given a dose of Cooper's sheep-dip.

In July 1875, he passed his preliminary scientific examination, and got a College gold medal for anatomy. His father's letters to his mother recall the worship of examinations at that time:

July 22. I am very sorry I forgot to leave a message for Victor to tell him to write to me, as last night, about his day's

work. Tell him how much I think of him and how very frequently I have prayed to God that his industry of the past year may be rewarded with success. At the same time I am quite prepared to know that he has not succeeded, and that the work has been too much for the time in which he has had to do it. I trust he has remembered to pray for strength in this and in all his work. *July* 23. I was much disappointed that you did not mention how Victor had got on on Wednesday. Tell me all about his work, and what his impression is as to the result. *July* 25. I dreamt last night that I went to inquire, and saw a list in which V.'s name was *not*: however, a porter came forward and said that was not the list in which he would appear, and that it would not be out for a week! *July* 31. You 'll have got Vic's telegram, I trust, and will, I am sure, be as *thankful* as I am at his success. To have passed his Preliminary Sci. 1st division and got the medal too is a great achievement. . . . I gave V. a sovereign for the medal, and now I 've given him another. I thought at one time of a 'fiver,' but perhaps I have done enough. *Aug.* 1. Victor got his medal to-day, a very pretty one, with his name engraved, and a good-looking testimonial to his diligence and industry, etc., signed by Lords Belper and Kimberley and Professor Allchin. I have put it in the iron safe, and the medal shall go there also.

The next three years, from October 1875 to July 1878, were given to anatomy and physiology. He took his time over them: he had Ellis and Thane, Burdon Sanderson and Schäfer, for his teachers: he could not wish for anything better. His father writes, November 17, 1875:

Vic and I were at breakfast before 8, and he was off before 8.15. He is deeply interested in his 'part' (*entre nous* a bit of an old 'ooman), and from what I see and hear, nothing could be more satisfactory than his proceedings. I find from Morton that he dines when he comes home about 2.30, and then goes and dines again most days with the William Callcotts, at 7, which, as Morton says, does for tea and supper!! He won't starve! She says he is always home by 8.30. He feels now that any one with him would be in his way, as he works every evening.

And Victor, in a letter of the same month, says, 'It is quite necessary that I should work till 11 P.M. now, especially as eight hours' sleep is oceans.'

Dr. Lendon, who was just senior to him at University College, writes :

> I remember, about the time when he first made his appearance in the dissecting-room, demonstrating to him with chalk, and with the seat of a wooden stool for a blackboard, the intricacies of the brachial plexus, and I can even recall the pleased look he gave me.

For three sessions, from 1875 to 1878, he attended the lectures in anatomy and in physiology : his notes of Burdon Sanderson's lectures are a model of careful note taking. In the Students' Medical Society, he read a paper, in the winter session of 1875-76, ' On the ending of the tendons in the rat's tail,' and a paper, in the winter session of 1876-77, ' On the terminations of muscular fibres ; and a note on the structure of intervertebral discs.' The first paper is lost ; the second paper is a long and carefully written record of good original microscope work, such as few students were doing at that time ; and in 1877, the Students' Society gave him a prize of £5 for it, and put him at the head of the list of students elected to be its officers. At the end of the summer session, 1877, in the College examination in physiology, Bilton Pollard got the gold medal, and Francis Gotch and Horsley and Rushton Parker were tied for the silver medal : in the examination in practical physiology—section cutting, chemical testing, etc.—W. H. Neale got the gold medal, and Horsley the silver medal. Then came the great event of 1877, a month's holiday, with J. F. W. Silk, in Germany. His diary of this tour, a hundred and twenty closely written pages, has come to hand : doubtless it was required of him by his father : its tone is none the less, or all the more, independent. The young men went by Queenboro' and Flushing, up the Rhine, and from one German town to another, now by rail, now sending their bags ahead and walking with knapsacks. They saw what they could of universities and museums and laboratories, with the help of a card of introduction from Burdon Sanderson ; it is stuck in the cover of the diary as ' our passport.' They made the most of their time, rising at 6.30, river bathing, sight seeing, tramping. The diary

is the very image of him. The fastidiousness, the extravagantly worded condemnation of all offending persons, institutions, or works of art, the perfect self-sufficiency—in the good Greek sense of the word—these all playing on the surface of his life. He had to be saving of money: his expenses, all the way to Würzburg and back—from August 4 to September 2—were £18. 10s. 8d.

Flushing—the Dutch Army: 'The soldiers were most absurd and apparently were innocent of any discipline whatever. They were young, and as stupid-looking as possible. We saw a company being marched to breakfast. The officers were pretty smart, but the men like convicts: they are armed with the Chassepot and ordinary bayonet. . . . At Bergen-op-Zoom some of the troops were encamped in bell tents. At Rosendaal were several Hussars, who were decent, and that is all. Besides, they must have ridden about 14 or 15 stone.' *Cologne:* 'The table d'hôte at the Victoria was characterised by dead silence, and the awful and fatal haste with which the people eat—the most awful and stupid lot I ever saw. . . . The soldiers, of course, are very numerous. As a rule they are short and very young, mere boys most of them, but well made.' In the museum: 'The pictures were, as a rule, hideous Catholic things, and the Roman antiquities, considering the importance of the place, were but commonplace things.' A Schützenfest at Deutz: 'The greatest jest and farce of the whole was the prime object, the shooting. The men had blunderbuss carbines, rested!!! them in a wooden cupboard affair, and fired at round discs a foot broad about 30 yards from this cupboard affair.' Table d'hôte again: 'There was a swell who talked sense, and a snob who talked nonsense: the latter, by the way, expressed himself strongly anti-German, so, looking at his brain, we came to the conclusion that argument was of no avail. He became excited under the Niedersteiner, and finally spilt some in pouring it out, saying, "I like this wine." I could not help chuckling, and he was immediately silent and continued so throughout.' *Bonn*—the University: 'A long, straggling line of buildings: it is awfully ugly, and has a gingerbread-looking statue in front.' The Coblentzer Thor: 'Over which was another gilt affair of St. George assiduously tickling a bright yellow dragon, who had evidently given up long ago, and was merely expostulating.' The anatomical institute and museum: 'The comparative anatomy skeletons were good and orderly in arrangement: the human anatomy was most disorderly, and utterly useless for any systematic reading or even demonstration.' *Königswinter:* 'The room

we were in was nice and airy, but had recently been varnished, so that if we remained some time in any place it was difficult to "tear ourselves away." '

Coblentz—the fortifications of Ehrenbreitstein and the Karthause: 'The Schutzplatz was very absurd: they fired in long ditches with the target at the end. In this way they avoided all difficulties of sun, wind, etc., but lost view of the fact that these are unavoidable.' *St. Goar*—the Rheinfels: 'The custodian was a great joke: he talked very clearly, so it was easy for us to understand him: our views on the Eastern Question coincided, and he declaimed, with great vigour that both the Russians and Turks were pigs.' *Mainz*—the soldiery: 'Very small and grubby-looking: the Hussars are the best, and they seem to ride far too heavily.' The museum: 'The best things were Romano-Frankish graves, one complete, being well worth the visit. The collection of implements, too, is very fine, and more especially the Roman sandals: it appears that they came on a find of them in the Emmenstrasse: they certainly are very perfect. The gold torques, too, were very magnificent. But one would see Greek, Roman, Frank, and mediæval helmets on the same shelf.' *Frankfort*—the Römer: 'The beggars who painted the Kaisersaal were sweeps, for they have left out the Earl of Cornwall, who was Emperor for twenty-two years.' *Heidelberg*—the hotel: 'where we were gorgeously received by half a dozen waiters and the landlord into the bargain, who was such a nob that I instinctively took off my hat, but soon put it on again.' The physiological laboratory, with Ewald: 'He kindly showed us the vision purple: one sees a beautiful picture of the retinal elements from behind.' The anatomical museum: some rare specimens; but 'the museum was perhaps in the most disgraceful and unkempt condition that it was possible to be in, and beyond serving as a storehouse for a demonstration, it was of no use whatever. For this fraud we had to pay half a mark each: this is the case with all these museums, and it certainly reflects no credit on the scientific guardians: it seems more odd from being so totally unknown in England and so utterly unexpected in Germany.' The collection of duelling-swords: 'Really one would think the men would have a little more common-sense than to fool about in this extraordinary way, for it is very rarely an affair of honour, and as the students are (so far as we have seen) quite the reverse of beautiful, they cannot spare any good looks to be disfigured.' *Strasbourg*—the physiological institute: 'We saw Professors Goltz's and Hoppe-Seyler's laboratories. That of the latter, except his private room, was in a most filthy condition, and how they could get trustworthy results is a mystery. We saw several of Goltz's dogs, which were very interesting.'

From *Appenweier*, a thirty-four miles walk to *Fremdenstadt*: 'The odours of *all* kinds that came through the house were positively startling. First the stables, then a drain, then coffee, backed up by the cowshed.' *To Stuttgart*: sixty-miles walk in two days: 'A good museum: a bad service at the English church.' *Ulm: Augsburg:* a day at *Lechfeld*, for a sight of the Army autumn manœuvres.

Munich—bags not arrived: 'Every official here is a little king, and accustomed to lord it. Even a telegraph fellow was a bumptious little chap, and I only wished I knew enough German to sarcasticise him. . . . The German papers are really very odd. They have small telegrams containing hardly any news, with a useless article on the war. The remainder of the paper is filled with advertisements and bosh, backed up by a novel: the latter is the backbone indeed of the paper. The gist of the whole matter is, of course, that they are so fettered by the Press Laws. Surely this over-government cannot last long. It shows itself in the most extraordinary ways. . . . The interiors of the public buildings are grand and fine, but the exteriors are inexpressibly hideous, prison-like, and, moreover, covered with the extraordinary bilious yellow-green with which every government building is painted. How an artistic city could perpetrate it is very wonderful.' The museum of fossils: 'it almost rivals that department of the British Museum in completeness and beauty. The Solenhofen quarries, of course, have furnished beautiful invertebrates especially. This museum should be studied with Owen. Both works are well worthy of each other.'

Finally, Nüremberg, where he was properly delighted with the treasures of art in the churches; and was plagued with toothache—'however, managed to read not a little Kölliker, which staved it off somewhat'—and Würzburg, where he came in for a festival in honour of the Crown Prince, who made a speech to the people, 'in which he promised to tell the Emperor what a good town Würzburg was.' And from Würzburg home, full tilt: this masterful young man of twenty, who knew his own mind, and could exorcise the toothache by reading Kölliker's Entwickelungsgeschichte. There is no room here for his praises of the beauty of the country, his delight in the open-air life.

He was at home through all the seven years of his time as a student: from January 1874, when he was sixteen, and began reading for his preliminary scientific examination, to

November 1880, when he was twenty-three, and passed his qualifying examination at the Royal College of Surgeons. These all-important years refuse to be cut into periods. The events of them are plain enough: but there is more than that in them. He was kept at home too long; he ought to have had his freedom before 1880, before the influences of home and the influences of the Hospital were in final conflict over him.

Mrs. Gotch has written of these years at home:

> No sooner did he really take up the study of medicine than everything gave place to it. He was a born enthusiast. He gave up everything which would interfere with his work, though to the last his boyish love of fun and games and the country was as keen as when he was fourteen. But these things were only recreations: work came first. For instance, he was fond, as a boy, of dancing, and I have a vision of him waltzing at a party in our big dining-room at Willesley, almost lost in the folds of the dress of the very large and stout wife of the country solicitor; but I don't think he ever went to a dance after he came to London, though his more frivolous brothers and sisters earned for themselves the title of the Dancing Dervishes. All theatres were given up for some years, at the same time. Partly, he felt that theatre-going was against his duty to his work; partly, there was a touch of the puritan spirit—he did not hold with the theatrical world, he thought it somehow wrong.
>
> He was always kind to me, his much younger sister, and delighted to teach me odds and ends of zoology and anatomy, for I had been interested in these subjects from the time of the early dissections at Willesley. With his early days at University College, when he was working for the preliminary scientific, began a system of Sunday afternoon walks in Kensington Gardens, where we would sit on a bench and he would illustrate his descriptions of amœbæ and ciliated organisms with elaborate drawings on the sandy gravel. As he got on to anatomy proper, he would sometimes bring home small 'parts,' of the dissection of which I was always the privileged spectator, and he would teach and explain, with that patience and enthusiasm which characterised him all his life.
>
> Another thing which he liked to teach me, and which I loved to learn, was physical exercises. For many years he was a devoted member of the Artists' Corps, which he only gave up because of its interference with his professional work, and for hours we used to go through the bayonet exercise, or singlestick movements, he with a huge old

Snider, I with some counterfeit weapon of a lighter nature: or we would stand solemnly opposite each other bending first one knee and then the other, to strengthen the muscles of the thighs, and see how long we could keep it up.

He delighted in long walks. It is on record that when he was not more than fourteen, he and his friend Lewis Hardy walked from Willesley to Pevensey, thence by train to Hastings, and so to Etchingham, and walked home from Etchingham, 9 miles, in the dark. Altogether, a 40-miles' walk. Lunch was eaten under a hedge before they reached Pevensey. On another occasion, in the earlier years in London, the brothers walked to Windsor, 22 miles, in snow and slippery frozen slush, and that same year, on Good Friday, they walked to St. Albans and back, and saw the Cathedral as well, 45 miles. He was not a good rider: he was clumsy at some things: impetuosity was his chief characteristic.

It was after we came to live in London that he learned to love the river, for in Kent there was no water worth speaking-of within our reach. Almost the first time that I remember going on the river was at Weybridge, where we were staying about 1877. He hired a boat to take my sister and me out, and we were very much appalled when my mother, who had a horror of the water, insisted on coming too, so as to look after us. But her nerves got the better of her maternal feelings, and she was put ashore, happily before the following incident occurred, and I need hardly say that she never heard of it. As it was hard work pulling against the stream, he and I got out to tow, leaving my sister to sit in the boat and steer; but the tow-line was too rotten to stand his energetic pulling, and broke: my sister was left helpless with one scull, quite ignorant how to use it (we had fastened the other to the tow-line), and was being rapidly carried down stream toward a weir, when Victor, with lightning speed, made up his mind, tore along the bank, flinging off his garments as he went (which I, flying after him, assiduously picked up), dived in ahead of the boat, swam to it, climbed in, and managed to bring it ashore.

It was very early in his student days that he took up the temperance and anti-tobacco causes, and the most heated arguments used to take place, particularly at Sunday suppers, to which he very often invited one or two of his University College friends. My father, as a non-smoker, cordially agreed with him as to the evils of tobacco, but was inclined at first to resent his abuse of 'God's good gift' of wine (an expression which particularly roused Victor's ire), though he practically became a teetotaller, soon after that time, for the rest of his life. We had a clever, really brilliant, German lady living with us as governess, and after my parents had

gone up to the drawing-room, tremendous battles would take place between her and Victor and his friends, on metaphysical and religious subjects, to which I would listen from a dark corner, hoping that I should not be noticed and sent to bed. When Victor was a small boy, I think he was singularly easygoing and good-tempered, showing none of the pugnacity, and impatience of other people's opinions, which marked his later life: but with the dawn of his intellectual development these characteristics certainly began to show themselves, and I remember a desperate row with the governess, in which the slamming and locking of the dining-room door played a part, though I have forgotten the cause of the scene. And, a little later, I remember his withering scorn of our poor old family doctor's methods when I was being treated for bronchitis; and my mother's horror at his blasphemy.

There existed, in University College, a mixed club—'The Club,' it was called quite simply—for the discussion of various subjects, and for the social intercourse of the men and women students, and at one of the meetings he read a paper on Reformed Dress for Women. This he showed me, and though my blood froze at the appalling spectacle of the creature he had drawn in illustration of the scheme—a female in trousers to the ankle and a sort of very full frock-coat buttoned up to the throat—I don't remember making any spoken protest: anything he thought or advocated was far too sacred to be objected to openly.

Of the books which they read together, Mrs. Gotch remembers Clough's poems, and Boyd Dawkins's Early Man in Britain; and, above all, Kingsley's Yeast, Two Years Ago, and Health and Education. They put themselves heart and soul under Kingsley's authority; he gave her Kingsley's Life, and marked passages in it for her, and she writes to him, in 1879, 'I am still busy on Health and Education, but I don't know *when* I shall finish it, for it contains such mines of thought that I find myself dreaming over one paragraph till my time is up.'

On April 5, 1878, he passed the first examination for the membership of the Royal College of Surgeons, and on May 29 the first examination for the fellowship. Between these two examinations, he and his brother Walter were at the Easter manœuvres:

To his father. April 20. *Sutton: Carpenter's shop.* You see I am up next the roof. The other men are in a barn. By the way, I reported of it, the barn, that the ventilation

was not sufficient, so boards were stove out. We are on straw, comfortable, of course. We marched in, having drilled three times on the way, which set the men up. Have beef here. We went for a walk round town after adjutant's parade. I saw tea chalked up: we had it in the kitchen with the people, which was very jolly. *From Mr. Horsley to Mrs. Horsley, April* 24. The boys turned up about four o'clock, looking the picture of health and strength. They were of the baggage-guard coming up, and slept at Mitcham last night, having enjoyed themselves utterly, Victor, as usual, the most loud in his entoosymoosy.

At the end of the summer session, 1878, he got the Filliter Exhibition in Pathological Anatomy. In August, he passed the first examination for the degree of Bachelor of Medicine of the University of London: he was in the first class in both subjects, anatomy and physiology; and he got the gold medal for anatomy. This success was gained under difficulties, for he was crippled with a sore foot. The family-holiday this summer was at Fontainebleau; he joined them after a sea-trip to Falmouth. He writes from London to his sister Rosamund in Paris:

Aug. 1. Fortunately the papers have been easy as yet at the M.B., so my leg has not had much effect. I suppose I must come to Fontainebleau and vegetate. It is, of course, a great nuisance, as I just wanted to get into decent training after the last nine months. Have you seen the scientific side of the Exhibition yet? Try and find out the movements of the troops, *i.e.* what time you see them going to or coming back from drill. *Aug.* 4. As to the scientific part of the Exhibition, we must have a day or two there together, as it is evidently full of interest and objects that you will understand quite well if they are only pointed out. Of course all my plans are upset. The last idea is that I should 'voyage' to Falmouth and back in one of the Irish steamers, in order to get gaseous food in, and perhaps let solid food out. The air would be worth anything. . . . I have ridden into town every day in a hansom, which is first-rate. The horses seem to know that whenever a gap occurs in the crowd, they are to run for it: consequently need little stimulation. Mr. —— came yesterday to see Walter's picture, and said it only wanted a little more ''eat and 'aziness' in it.

To his father, Aug. 11, *ss.* '*Lady Eglinton.*' *Off the Needles.* Coming into Portsmouth, the wind dropped a little, and enabled us to see the Fleet at anchor splendidly. The Queen

reviews them to-morrow. The first line, thirteen ironclads, broadside vessels. The second line consisted of the Turret Ships, which are like haystacks with most of the sides cut away, since they are all painted a hideous yellow-ochre colour. Went ashore at Southampton into the public park, which was yet young : they have there gymnastic bars, poles, ladders, for all the little blackguards to fool about on. A very good idea. Southampton is a straggling place of no particular architecture. *Aug.* 15, *Hodge's Temperance Hotel, Falmouth.* In the evening I went to see the parade of the Falmouth rifle company, over 120 strong. With more looking after by the N.C.O.s they would be very good, but there was too much talking, and the rapidity with which they stood easy at the word Stand at ease was amazing. They were almost all fine men, the average height being quite 5 feet 10 inches. To-day I was going to Truro, but coming out I met a man who is in the 'Artists' : he offered me to fish, so we went out at nine and got back at five. In running back home we saw a shag : one of the men had a gun aboard, so we tacked all over the place, pursuing the beggar. It was a glorious joke. Of course it escaped, after two pots at it. In the evening I went to the Polytechnic to try to get a book out. The great foods here are pasties. Fortunately this hotel is invaded (it is also a kind of eating-house) by hosts of Cornish tourists from Truro and the inland, who are well worth watching. *Aug.* 17. Went to Truro and back yesterday, up the river Fal 12 miles. Very fortunate in getting into museum and library. I called on a Dr. Jago, F.R.S., on the strength of my calling, as I found he was a man having authority in the place. . . . Cornwall is a mass of antiquities and scientific objects of enormous value, so it is rather hard to leave. Obviously a walking tour is the only way to do it.

At Fontainebleau, he and Walter studied the practice of the Artillery School. 'Our two volunteers,' his father writes, 'are of course much interested, and most critical, in the military work. They had a narrow escape the other day, for a shell burst in the muzzle of a large howitzer and blew off half the gun, and the pieces of it and the shell were dropping all round them.' From Paris, on his way back from Fontainebleau, Victor writes, 'The Exhibition is disappointing in the medical line. I have finished the pictures, which took me a day and a half. I have found a temperance coffee-bar, where I get what dinner I want.'

III

From October 1878 to May 1881

Before October 1878, he had seen something of the practice of the Hospital, but as it were on sufferance. Now, he clerked and dressed in the wards and out-patient departments, and attended lectures, *post-mortem* examinations, operations, and so forth. Like many students, he was at first unable to look-on at operations without faintness; he would get a friend to support him, or would leave the theatre for a few minutes and come back to it. He also held, at one time or another, junior demonstratorships in anatomy, physiology, and pathology. Dr. Marten of Adelaide remembers first seeing him, as a junior demonstrator of anatomy, in 1878:

> We first-year's men had to assemble for a 'bone class' at the far end of the old dissecting-room, and punctually as the clock struck noon, in walked the Demonstrator, with a lot of vertebrae and chalks. He had a quiet, unassuming personality, and at once gained our attention, for he explained all the intricacies of the bones in a wonderful way: moreover, he had the happy knack of so imparting knowledge that it seemed to remain with you always.

There is a reference, in Gowers's Diagnosis of Diseases of the Spinal Cord—an address given in October 1879, published in 1880—to some anatomical studies, which Horsley made for him, on the relations between the spinal column and the origins of the spinal nerves.

In the wards, he clerked for Dr. Bastian, and dressed for Mr. John Marshall. It is well known of Bastian that he was the last of the opponents of Pasteur and Tyndall in the controversy over 'spontaneous generation'; but he was also one of the founders of our present knowledge of the diseases of the nervous system. He is in the company of

Hughlings Jackson, Charcot, Gowers, Ferrier. In 1879, Horsley made two of the drawings for Bastian's book, published in 1880, The Brain as an Organ of the Mind, and in 1880, in the April number of Brain, Bastian and he published a paper, 'Arrest of development in the left upper limb, in association with an extremely small right ascending parietal convolution.' The notes and drawings of this case had been made by Horsley in 1879. To the same year, belong some admirable notes and microscope-drawings of two cases of tubercular retinitis; but these were not published. The paper in Brain is his first contribution to medical literature. In it, Bastian and he refer to a similar case, which Gowers had published in 1878: then they say:

> It would seem that we have here another instance tending to corroborate the view that there is a correlation of some kind between the functional activities of these regions of the ascending parietal convolutions and the movements of the opposite hand and fingers, as indicated by the experimental observations of Dr. Ferrier. It seems something more than can be accounted for by mere coincidence when precisely the regions of the cortex indicated by him are found to be defective in bulk in two consecutive cases of absence or arrest of development of the hand.

In 1880, Horsley and F. W. Mott were occupied for seven months, off and on, with a subject of bacteriology. They published their results in the Journal of Physiology, 1882, in a paper 'On the existence of bacteria, or their antecedents, in healthy tissues.' This question, whether bacteria, 'or their antecedents,' could or could not be discovered in the healthy tissues of newly killed animals, was regarded, in 1880, as a great stumbling block in the way of 'Listerism.' These two students, who afterwards gained such high distinction, were already, in 1880, doing bacteriological work far in advance of their contemporaries: they planned it and completed it with amazing thoroughness.

Thus, when he was not yet qualified to practise, he was teaching, experimenting, and publishing observations in physiology and bacteriology. But his leadership of his fellow-students, his irresistible hold over them, were given to him not by these advantages, but more by what he was in

himself. One of his contemporaries, J. E. Hine, afterwards Bishop of Northern Rhodesia, writes :

> He and I entered the Medical School on the same day in October 1875. That year's entry was a good one, and produced some men who have become well known : Francis Gotch, late Professor of Physiology at Oxford, F. W. Mott, Angel Money, Dawson Williams, Sidney Martin, C. E. Beevor, Bilton Pollard, Bond of Leicester, were all contemporaries. Several of these have obtained the F.R.S.
>
> Our teachers at University College Hospital in those days were Viner Ellis, Burdon Sanderson (who very soon, I think, recognised Horsley's merits and powers), Ringer, Bastian, Russell Reynolds, Wilson Fox. Among the younger members of the Staff, with whom Horsley would have more particularly to do, were Marcus Beck, R. J. Godlee, A. E. Barker, and Gowers. The great L. S. Jameson (Sir Starr) was demonstrator of anatomy, and subsequently resident medical officer.
>
> I remember Horsley in those days as a keen, energetic person, with a ' dolichocephalic'-shaped head, always with an alert look and with an inquiring and sceptical mind. I think we all felt that he had a future before him, and was a greater man than others of his year. Personally he was always charming, perfectly ' straight,' self-dependent. He always had a contempt for examinations as any real test of knowledge or capacity. He had a strong hatred of humbug of all kinds : he protested against words and phrases like ' special idiosyncrasy,' which he called a mere cloak for ignorance. He also held strong views on subjects like food, alcohol, etc. Mustard and suchlike condiments he denounced with vigour. I remember once in a debate the mustard question came up, and Dudley Buxton quoted against him Katharine's saying, in The Taming of the Shrew, about a piece of beef and mustard—' A dish that I do love to feed upon '—but this carried no conviction to Horsley's mind.
>
> I have no letters of Horsley's. I only corresponded with him once, about a question which came up at the Lambeth Conference—danger of infection by use of the chalice in the Communion. Horsley asked me to go and see him and talk it over, but for some reason, the interview fell through. Our lines had drifted too far apart : he, the great surgeon in London, and I a missionary in Central Africa for twenty-five years.
>
> I think he enjoyed ' having his knife ' into anybody—not surgically speaking, but metaphorically : anything that seemed to him an abuse, real or imaginary, he loved to attack. But though he must (?) have had controversies with many persons in different connections, I think every one must have

admired him, so thoroughly sincere, genuine, as he was, brilliant in intellect and blameless in life.

Mr. C. J. Bond of Leicester, one of Horsley's life-long and closest friends, writes :

It would be some time during the summer session of 1877 that he first invited me to his home at High Row, Kensington, and I remember well the amused expression with which he recounted to me a family escapade which had ended in injury to one of his father's paintings. This occurred from an over-zealous practice with firearms in the garden behind the studio.

About this time, a few of us students at University College became interested, as young men with inquiring minds are apt to be, in intellectual problems of a fundamental kind, and during 1878 Dudley Buxton, H. D. Waugh, Harrington Sainsbury, P. Shearman, Hubert Murray, Horsley, myself, and one or two others started a small circle called the University College Philomathic Society. One of the earliest discussions was introduced by a paper by Dudley Buxton, ' Can there be an absolute right and wrong, independently of a Theistic existence ? ' This was followed by papers, in the nature of replies, from each of us : and Horsley, in his contribution to the discussion, tried to show that the following conclusions were justified : (1) The question of the existence of an abstraction, without an exact knowledge of it, is incapable of solution. (2) We can conceive of absolute right by the use of our experience, employed in its positive and negative aspects.

It must have been in connection with one of these discussions that Horsley wrote to me, just before the summer vacation of 1878, ' You are sure to have some leisure during the next two months, and I want you to write down your own idea as to what you mean by " the soul." Mind, not any one else's opinion, but your own.' I still have this letter and my own in reply, and though youthful enthusiasm and inexperience may have detracted from the value of our conclusions, I cannot help thinking that we were engaged in a not wholly useless exercise.

He was immensely popular with fellow-students and fellow-residents, all of whom he was ever ready to help, and I remember Marcus Beck, then Assistant-Surgeon to the Hospital, a great friend of the students, expressing his own firm conviction that Horsley was a genius and would have a brilliant future.[1]

[1] To be praised by Marcus Beck was one of the finest things that could happen to students of the Hospital. He understood them perfectly : they coveted his good opinion, and not they alone : his memory is had in reverence by everybody who knew him. There was no man at the Hospital

I left the Hospital in 1879 to take up a house-surgeoncy at the Bedford General Infirmary. Horsley came down to spend some days with me in the old building, now pulled down to make room for the modern Hospital. We spent our spare time boating on the river Ouse, and working out some details in the microscopic structure of the salivary glands of the green woodpecker. I still possess some slides labelled in Horsley's handwriting, with pencil-sketches of sections of this compound gland.

He took his dominant place in 'the best set'—the strong-willed, hard-thinking young men who are the making of a great Medical School, wherever they are. To him, now and always, everything was a matter of principle, and he defended his opinions so earnestly, and so good-naturedly, that where lesser men would have lost influence, he gained it. He did not stop at renouncing theatres and wine and tobacco. He hated loose talk, and would not let it pass; and he obeyed, all his life, the rule of absolute chastity. He delighted to help men over their work. And in everything he had a way with him, a magic of his own. For his devotion to bacteriology—which then was a new science, full of large and amazing surprises—they called him the Germ: other names, less often used, were the Professor, which explains itself, and the Vulture, for his insistence on the value of *post-mortem* studies: and a later name was Archibald Allright, for his invincible optimism.

At Christmas-time, 1878, he got a couple of days of hard walking in Kent: 'We lunched at Brasted for the magnificent sum of 3d. The village is shopless and consists of four or five houses, but was called by one of the aborigines a "town." . . . There was a very nice little Inn at Hever, but the vicar had filled it with wedding guests, and so we had to come on here (Edenbridge). . . . Eridge rocks are very magnificent,

whom Horsley more admired. As he said, many years later, in his address to the Sheffield Medical School, 1895, 'If you ask me for a guide or example, I can at once—though not a believer in hero-worship—point to one who was a striking example of the powerful influence for good that some men evidently exert.' He went on to speak of Guy de Chauliac's ideal surgeon: 'bold when sure, cautious in danger, kind to the sick, friendly with fellow-workers, constant in duty, not greedy of gain.' 'These words are now placed on the memorial to Mr. Beck in University College Hospital, and just as he showed us in his life how true they are, so let us also keep them before us to remind us what should be the character of our life's work.'

like Fontainebleau only very much more so. . . . The view into the misty Weald under the sunset was scrumptious.' In August 1879, he and Dudley Buxton and Walter Pearce had a walking tour in Cornwall and Devon. The letters of this holiday are illustrated with rough sketches, and they are of prodigious length : ' Strange to say, I have developed a feeling at any rate (not to say more) for letter writing.'

Aug. 21, *St. Just.* At Padstow a ferryman swindled us with great success, so Pearce was instructed to put a spoke in his wheel if possible with the authorities. In this, however, our charitable intentions were frustrated, as the beggar had a private contract, and had, it appeared, done the Town Constable under similar circumstances. The Padstow people are quite satisfied to drink solutions of their decomposing ancestry, I suppose in order that family characteristics may be perpetuated. . . . As we came over the cliffs into New Quay, we passed two tumuli, one of which had been opened and still showed the stone ' chest ' grave very beautifully. I have made a sketch of it. Later I found in New Quay the farmer on whose land they were opened by Mr. Borlase, and from him found that the only implement discoverable was of *stone*. . . . All the further country to Perran Porth lay across genuine sand-dunes, the likes of which I don't much mind if I don't go over again. . . . There was extensive lead-mining on the dunes, but all are now abandoned, the same general misery being found all over the country. Here at St. Just there are only three working out of seventeen. At St. Ives we found a man of U.C.H. lately set up, and with him went to Hayle regatta : the day would have been very slow had not we luckily got into a fishing lugger and pulled the sweeps round home. St. Ives is a marvellous place as being the resort of humdrum lives and bad smells. The upper ten play Pope Joan for five hours at a stretch, finished with a heavy supper and instant departure. To-day we walked past Gurnard's Head and over regular moor country. St. Just is a town much too large for itself. We had a jolly climb round the cliffs : the spray was magnificent, just like big guns. I wish Rosamund were here.

Aug. 23. *Penzance : Matthew's Temperance Hotel.* . . . The poor inland of Cornwall, an unfertile moorland covered with heather save where cultivated—grey granite blocks, looking as if they had seen any number of cycles, standing boldly through the peat, not afraid of any knockdown blows the weather may offer them. Of course, taken thus alone, such scenery is very grand, and, however wretched to some people, there is nothing more jolly to me than to see the

grey mist waving about such hills, and the lonelier the better. But there is one feature in the landscape which introduces misery into the view, accordingly deducting from our pleasure, and that feature is the constant occurrence of a disused mine. . . . At St. Just, I and Buxton slept in a fairly narrow bed with not many clothes, and yet I kicked not, neither did I struggle, finally waking in the position in which I fell asleep. . . . From Land's End to Logan Rock we thought ourselves clever by taking off our boots, etc. and wading through the surf. The end of it was we had to swarm up the granite cliff, and so got to the Logan, which was a fraud inasmuch as it would not 'log.' However, that was a small matter, as we had a jolly good climb to get at it. As we came away, we saw a tripper and a guide! Such is the folly of mankind; moreover, as we were having lemonade and milk at Porthguarra, a cub-party hove in sight, consisting of the tutor, a pale-faced man with a green silk umbrella, and the following, which was made up of youths and boys of various ages. The Logan Rock is obviously a perfectly natural production, and old Borlase and traditions may hypothesize any number of Druids, but on poor basis. . . . Of course, one learns all through every tour how to do the thing better, and this much is 'klar,' that Cornwall can only be properly done by staying at places and then scrambling about everywhere all day long. Every rock corner is well worth climbing round.

Penzance is a very clean town, and like many Cornish towns, several of the gutters have hillside leats running in them. The aborigines are a go-ahead people, and have had a fine Geological Institute since 1833. Their minerals are very fine. The fossils, of course, I have seen before, but found more I had not noticed before. Unfortunately their Biological Museum and Archæological ditto are in a very poor state, and I suppose as tin is down so everything goes: the biological interest has flagged terribly. However, it may yet move. . . . We first went to the Museum and then over the rocks to the Mount. The granite rock driven up through the slate makes a splendid eyrie, and I only wish it were mine to live in. I should fortify it to the teeth and have a splendid laboratory fitted with every imaginable instrument and reagent. At Mousehole we hired a man, who was much amused and puzzled when Pearce and myself discussed his fare in German. He was a very fine fellow, and told us no end of a lot. He is in the Naval Reserve, and looked forward to using the Henry Martini. I wish you were here as I could show you no end.

Aug. 24. *Plymouth: Wolfrey's Temperance Hotel.* We strolled round to the Barbican and soon got into a boat. Buxton and I pulled up to Oreston, while Pearce extracted

from the boatman the old story how drink had entirely broken up his family and left him with no resources whatever: he was half screwed, and when we landed at Oreston, wanted half a pint, but we shoved him off into deep water again, so he went back. . . . The nautical folk here are very jolly, and I only wish we were staying a month to enjoy the place thoroughly—enjoy it, not as the Plymouthians seem to do, *viz.* after the manner of Vanity Fair, but one could spend more than months in rowing round all the inlets. Next day we went straight down to the Barbican again and got hold of our yesterday's man, old Cowell, who was sober, and pulled away across the Catwater under the lee of Baggy Point, and dived off the boat into the deep green sea. We tossed and, as I won, rowed back again. Then we went for Stonehouse, walked round the Devil's Point into the Victualling Yard. The biscuit is very jolly eating, and I wouldn't mind a turn with our bread. . . . From the Victualling Yard we went up to a fort, sat on a wall and ate our sandwiches, then dropped down on Devonport Dockyard. Of course we were shown round by a policeman, but Buxton was done up and Pearce does not care much for military equipage, so we were hurried. Must go through it another day by oneself with a pass. Then we went up to Stoke Park to enjoy the perspective. As we came down the hill to go into Plymouth, we passed the Military Hospital, but as it was, unfortunately, eighty years old, we did not learn much from the N.C. who showed us over.

Aug. 29. *Lee, near Ilfracombe.* . . . Newton Abbot must be a deadly alive place, for the poor visitors were reduced to archery. After condoling with the Newtonians and regretting that we could not attend the Wesleyan Conference, we were wedged into a carriage with bulky females who, for the most part, luckily got out at the next station. After longsuffering we got out ourselves at Torquay, and repaired along the searoad on the general skoot to a Temperance House. There are, it seems, three British Workman Houses erected by a kind of coffee subscription. . . . The ' garrison ' consisted of two men, whom we designated mutes, as they never spoke even to each other, a middle-aged female who might have been a lady's-maid, and two other males who produced literature and slept heavily over their intellectual fare. We cleaned up, went to a barber's, were scraped, and then found out Tuke's abode by my geographical nose. His mother and sister are, of course, very nice people and very sociable. Staying with them is a Miss ——, also a Quakeress: she is very interesting indeed, has read a great deal, and can talk and reason very well and correctly. . . . The two girls came out in waterproofs and sensible boots. Their boots were not thick enough in the sole, but the heels

were first-rate, and as they don't wear stays and dress very quietly, you can understand that they are very rational. Miss —— wants to be a medical student, so I told her what to do. I hope she will take up science at any rate, as there are evidently plenty of brains behind a red collection of hair to work whatever she turned to. Well, we took them round Kent's Cavern, and gave lectures at various points: Pearce worried the old man who, fortunately, only became extremely communicative, just as a bit of lard gets more oily if you finger it. Of course the best point is the enormous age of the bears' remains. . . . I think the Museum is capital, and only wants extending in other directions to be of the greatest possible value. We came here by train after spending a delightful hour, which I wish had been many others, in the Museum at Exeter.

In contrast with the fault of hardness in these letters there is a letter to his sister Rosamund, April 1880; a week-end with the Pearces at Maidenhead. He tells her everything: the look of the orchards, 'every branch seemed to be loaded with flowers, and the air was scented as we rode past'; the look of the woods and the riverside, and Marsh Lock—'you may judge how well the water looked, as perfectly green and white it rushed over the different weirs and through the penstocks: at one place in particular one could look up through the water to the sky, and it was just the appearance of a transparent mass of spar'—and the final flower gathering—'in a small shaw out in a field, where bluebells and primroses and anemones grew rampant. Besides, in our absence, Mrs. Pearce had collected a quantity of garden flowers, so that each of us was armed with fine bouquets for the Hospital.[1] . . . There is an old navvy in the Hospital, who is a native of Lincolnshire, though naturally he has travelled about a great deal in following work. He told me an immense amount of interesting facts about the fens: how that in sinking wells they came generally on flint-bearing chalk; that the peat subsoil was often 16 feet thick

[1] He writes to Mrs. Schäfer, June 26, 1882, 'Wards 1 and 2 desire to assure Mrs. Schäfer that the Depth of Gratitude felt by them on receiving the quite TOO lovely Water-Lilies CANNOT be expressed by the 70,000 resources of the British language.' In December 1882, when he was warded in Hospital, she sent him some flowers. He wrote back, 'To say that I make a worship of flowers would be as much an exaggeration as to say that any one thing is *my solitary* object of devotion, but that I am excessively fond of them is as equally true.'

and then came clay. He said, too, that the trunks of trees, which of course are commonly found in peat, frequently lay in one direction for some distance. The wood is usually carbonised, like the Irish bog-oak.'

In November 1880, he passed the final examination for the membership of the Royal College of Surgeons. He writes to his father, November 18, 'I have managed the M.R.C.S. all right, although they adopted a bullying tone which shifts my centre of equilibrium; so that I am now qualified to practise.' Then, a short holiday, by sea from Liverpool to Gibraltar: some water-colour sketches are left from it, but no letters. In December, he went into residence at the Hospital, for six months, as House-surgeon to Mr. John Marshall. Thus, the end of his home life came of necessity, with the change of his work; and it was opportune: for he had outgrown the constraints of home, and had departed from its religious observances. The Sunday mornings were given to microscope-work, at a table in Walter Horsley's studio; Victor and a friend worked together over the fascinating but secular pursuit of the embryology of the mouse. The Sunday evenings drifted into controversy. The younger children used to dread sitting as models to their father; for he could not keep himself from questioning them. "Where does the boy get these monstrous opinions from?' he would say to them. It was who should have him, the Hospital or home: and the Hospital won, hands down. In the later years—it was not all his fault—he gradually let his old home stand too far in the background of his crowded life.

The term of residence in Hospital, as a House-physician or House-surgeon, is likely to be one of the happiest times of a doctor's existence. It gives him that quiet sense of belonging to the place, that enjoyment of privilege and of near friendship, which make Cambridge and Oxford so delightful; and it gives him responsibility and experience, more than he would get in the time from either University. In this charmed circle, Horsley was Mr. John Marshall's House-surgeon from December 1880 to the end of May 1881. Mr. Marshall was one of his father's friends and colleagues,

for he was Professor of Anatomy at the Royal Academy. He was a Fellow of the Royal Society, Professor of Surgery at University College, and senior surgeon to the Hospital, and in 1883 President of the Royal College of Surgeons: a courteous gentleman and a good scholar. His daughter writes that Horsley 'was his favourite student. I know that he thought very highly of him, and took him to assist at private operations, and on one occasion left him to take charge of the patient, the first night after a very severe operation.'

There are two letters of this time, from Horsley to his sister Rosamund:

U.C.H., March 3, 1881. . . . Don't forget, if possible, to bring up some flowers for this benighted spot in Creation. My last set of dressers ornamented the women's ward with pots of flowers, as a passing souvenir. It was a very good idea of theirs, and, of course, was considerably appreciated. There is so much to do now that we have no time for general amusements, hence absence of news. . . . I have got a new set of dressers who are a very superior lot to the other set of rascals, who I could barely trust out of my sight, and who played the fool most unaccountably under any circumstances.

March 12. . . . As my week began on Wednesday, this is the first moment's peace I have had, and even now I ought not to be writing, but, as it will save a post, an effort is desirable. Multitudinous thanks for the primroses, which are the cynosure of many neighbouring eyes and have made glad the hearts of men and women. I have put into the box some dissecting instruments, in case they may be of use to you. . . . I have had a frightful week of it. Cases keeping me up till four o'clock in the morning. On Saturday at midnight we had an amputation at the shoulder joint, and on Monday evening, as we had arrived at the cheese, or, as we call it, the soap stage of dinner, a child was brought choking to the door and apparently expired there and then. However, I cut into the trachea, and Maudsley and I sucked the blood and mucus out of the said pipe, whereupon after doing artificial respiration for a quarter of an hour, it came to life again. It was generously presented by its fellows with a piece of raw Spanish chestnut, which it promptly inhaled: of course asphyxia was the result. Well, it coughed the bit of nut through the silver tube put into the trachea, so that now its chance of life is very good indeed: consequently Maudsley and I are very cockahoop about it, as the other fellows gave it up, in fact, two went away and said

we were wasting our time. As we did not know whether it had diphtheria or not, we washed our mouths out with quinine, whereupon the unfortunate Maudsley reproduced his dinner, and was promptly offered another by the Resident Med. Offr., who is the dinner president, but this last offer he did not accept.

He filled his days with work: his room at the Hospital bore witness—the table covered with books and papers, the arm-chair made impossible by microscope-slides laid out on it to dry: he, in the middle of it all, would gravely practise his rifle-drill.

IV

From 1881 to 1884

The term of residence in Hospital seems to have told on his health, for Mr. C. J. Bond writes :

> It was during his House-surgeoncy, 1880-81, that Horsley suffered, for some time, from a troublesome cough, and was told by one of the physicians to the Hospital that he had phthisis. This led to his writing me a characteristic letter, in which he referred to the disease, and to one of its unfavourable signs. With this letter came a beautifully made little trephine, 4 mm. in diameter, suitable for operation on the frog's skull. We had been discussing, on several occasions, the great field that was waiting for exploration in the physiology and surgery of the central nervous system. We had been bemoaning the small results that had attended, up to that time, the treatment of cerebral and cerebellar abscess. Macewen's epoch-making work had not then been published, and Horsley felt keenly that the time had come for more active surgical intervention in these and other head cases. And the point of his giving me the little trephine was, that Willie Tuke, a brilliant fellow-student and a great friend of Horsley's, had just been struck down by phthisis, from which he died : Horsley, in view of his own persistent cough, feared that he might share this fate, and he was deeply anxious that these new problems in cerebral and spinal surgery should be grappled with in the near future, even though he might be prevented by illness from taking an active part in the campaign.
>
> The little trephine was used during the following vacation at my home in Leicestershire, and I well remember the interest with which he listened to my description of the effect of removing the greater portion of the cerebral hemispheres in the toad : the arrest of the toad's instinctive habit of digging itself into loose ground, at the approach of winter, by an outward shovelling movement of the flexed hind limbs.

It may be that Horsley was in immediate danger of phthisis ; but he had no trouble of that sort in the later years.

The diagnosis of phthisis could not, in 1881, be decided by the finding of tubercle-bacilli in the sputa; for Koch's discovery of the bacillus was not made known till 1882. It appears that he said nothing to his people of what had been told him. Doubtless he was resolved that they should not send him out of London.

During his House-surgeoncy, or just after it, he began a long series of experiments on his own brain. Many of us, going under an anæsthetic, have watched with interest, and with anxiety, the gradual blotting-out of our faculties; but not many of us would care to do what Horsley did. He anæsthetised himself, or got a friend to anæsthetise him, it is said about fifty times in all: it might be partially, or it might be completely; and he devised ways of recording and signalling his experiences.[1] Dr. Marten of Adelaide writes: 'He used to come into our sitting-rooms, where having set us down at a table with pen and paper, he proceeded, whilst lying back in an armchair, to administer chloroform to himself. At his dictation we had to write down in what order his cerebral centres became inactive. It was found that the loss of brain function always took place in the same order, and that after he was able only to mumble a few words he could still move his arms. When quite unconscious, we had to remove the mask and allow him to sleep off the effects of the drug.' Dr. G. E. Twynam remembers giving him gas three times at one sitting. Mr. Salter Chappell remembers an occasion when Horsley was no sooner out of the anæsthetic than he demanded to be put under it again; but the anæsthetist objected—If anything went wrong, what should he do if ever he met Horsley's father? 'Well,' said Horsley, 'you would raise your hat like a gentleman, of course.' For some experiments, he took not gas but ether. It is said that the Hospital authorities called the attention of the Staff to the strange increase of consumption of the gas. From studying

[1] There is a reference to these rather hazardous performances in his Lees and Raper Memorial Lecture, 1900. His notes and signalling codes were the beginning of a collection which he made of examples of oddities and vagaries of the brain's action in fatigue or disease; the trailing-off of a man's writing if he falls asleep over it, the meaningless repetition of phrases in a letter, and so forth.

his highest cerebral centres, he went on to study his reflexes. As he says in his 'Note on the patellar knee-jerk,' published in Brain, October 1883:

> . . . I venture to record a few observations on the condition of this phenomenon when the subject of experiment is under the influence of nitrous oxide gas. In 1881, while experimenting (on myself) with this gas for a different purpose, it occurred to me to contrast the condition of the superficial and deep 'reflexes.' . . . To avoid the possibility of error in stating the depth of narcosis, only the result of experiments (fifteen in number) made on myself is here stated, but the facts were verified by observations made on other subjects.
>
> In all cases the anæsthesia was complete. . . . The anæsthesia was pushed until rigidity and sometimes cyanosis resulted. The recovery of consciousness was very frequently attended with considerable muscular spasm and semi-co-ordinated convulsive struggles and excitement. The 'reflexes' were examined at regular intervals of five seconds, from the commencement of the experiment to the return of consciousness.

In the summer of 1881, he took the degrees of Bachelor of Medicine and Bachelor of Surgery of the University of London. The gold medal in surgery was awarded to him, with an University Scholarship. He did not proceed to the degree of Master of Surgery.

At the end of 1881, he went to Berlin and Leipzig. He lived in Berlin with the Oppenheims, friends of his people, and relations of Mendelssohn, and he had letters of introduction to other friends in Berlin from his aunt, Miss Sophy Horsley. He writes to her, from Leipzig:

> *Stadt Rom Hotel, Dec.* 18, 1881. Of course I was very sorry to leave Berlin, but Leipzig is, on the whole, more interesting in a general way. Of course one's acquaintance with London and Paris does not allow of one's finding much novelty in Berlin, except in the 'manners and customs of the aborigines.' . . . In Berlin I believe I saw all that was possible in the time, and at any rate all that was immediately necessary for me to see. The life at the Oppenheims was just like being at home, and all their friends did not seem strangers at all, so that it is quite impossible that any visit could have been much more agreeable. Leipzig is beautiful, although Mrs. Wach has just left me, saying that she thought

it 'hässlich.' The odours are very powerful indeed for winter time, but all the back alleys, the market, etc., are splendid and 'quite too' mediæval. The people, too, are different from the Berliners, and it is always very amusing to watch foreigners, especially when they are in their native wilds. (*N.B.*—My letters are always egotistical, so the occurrence of 'I' in the following must not be a surprise.) The train from Berlin was supposed to be a Schnellzug direct to Munich, but all the trains here run as if time was no object to anybody. It arrived at Leipzig about twelve midday. I was conducted to a droschky, the horse of which had a method of progression quite peculiar to himself, viz. a succession of small hops in which the whole body of the animal moved as one piece. It was physically interesting, but not conducive to rapid progression. . . . Berlin and Leipzig are upside down with preparations for Christmas, and the Augustus Platz here is full of Christmas trees, which are the tops of fir-trees stuck into square bits of wood as stands. There is no snow or ice, which is a mystery to the populace and a grief to the shopkeepers, who say here that the people don't buy so much because it is not a genuine Weihnachtszeit. Yesterday I paid a visit to Prof. Cohnheim, who was very kind, in fact he had previously been primed up by Mrs. Wach. Unfortunately he does not know any English, but I take headers into German sentences, and if survival occurs the people generally understand. It is evident that this is the best Medical School, and it would be very jolly to stop some time. The surrounding country, however, is hideous.[1]

1882 (*æt.* 25)

He and C. J. Bond, this year, were sharing a bedroom and a sitting-room at 101 Charlotte Street, Fitzroy Square; a little shabby-genteel street, not far from the Hospital: more shabby now than genteel, but it has this distinction, that the Rossetti family lived in it. Bond was working for

[1] There is a letter from Mr. Oppenheim to Mr. Horsley, dated December 20, Unter den Linden, 8: 'I must tell you and Mrs. H. how very much we enjoyed Victor's visit, and congratulate you to such a son. Of course I knew very little of him until now, but I grew very fond of him and so does my whole family. My wife told me so often and the two girls express repeatedly their dissatisfaction, that "der englische Herr Horsley' has left us already. It is a pity indeed that his visit was so short. His fresh, modest, natural way took all our hearts, and besides he has the exquisite recommendation to be so much like his father. When he laughed, or explained a thing, or told a story, we thought him exactly like the "old one." (I beg your pardon, only in comparison of course.) Of course this is his less important side, but he is certainly on the way to become a man above the average. We all grüssen Victor intensely.'

the Fellowship of the Royal College of Surgeons. He writes that Horsley ' never seemed to get tired in those days. On one occasion, after working in the wards all day, we passed the night in the *post-mortem* house, carrying out operations on the dead body, and resumed our Hospital duties as usual next day.' And he remembers that Horsley, in 1882, had not the democratic mind of the later years : ' his outlook at this time on many sides of life, and on many sociological problems, was distinctly conservative.'

During 1882-84, Horsley was Surgical Registrar to the Hospital. It was his business to see that the students took proper notes of all surgical cases allotted to them, to arrange and have charge of these notes, and to draw up annual reports. The Surgical Registrar is always in and out of the wards ; he gives informal teaching to the House-surgeons, students, and nurses ; he is in close touch with the Staff, and is marked for promotion among them ; and, best of all, he has endless opportunities for learning, because every surgical case in the Hospital comes under his observation. The appointment is non-resident : he is free to start in private practice, and to pursue lines of work of his own, so far as he has time.

In 1882 also, Horsley was appointed Assistant-Professor of Pathology. These two appointments kept him close to the Hospital. Dr. Marten remembers of him as Surgical Registrar, that ' he was most indefatigable in his work, and a most pleasant man to have any dealings with. He invariably came to the Hospital between nine and ten o'clock at night, and dear old Lizzie Church, the head nurse of the ward, always made him a large basin of bread and milk before he left for home.' In his work for the Department of Pathology, he was no less keen : he would take any amount of trouble to obtain specimens, and to get leave for *post-mortem* examinations.

In March 1882, he made two experiments on the injection or transplantation of particles of tumours ; one from man to a cat, the other from a rat to a rabbit. One of them gave a positive result : the specimen was placed in University College Museum. There is a note by him, dated January

1882, 'Causes of failure in transplantation of tumours. Considering the results obtained in transfusion of blood (Schäfer, Landois, Blundell, etc.), failure probably due to the fact of one tumour substance not being transplanted into animal of same or very closely allied genus. Transplantation from man should be made into monkeys or domesticated carnivora. Transplantation from rats into rats and rabbits, guinea pigs, etc.'

During the spring of 1882, he was writing a Report for the Local Government Board, 'On "septic bacteria," and their physiological relations.' He had been instructed to report especially on the chemical action of bacteria, and their production of 'sepsin.' It was a long piece of work, fifty pages, with a list of two hundred and ninety references. On May 23, at a meeting of the Royal Medical and Chirurgical Society, he showed some of these bacteria—wound-infection, pyæmia, anthrax. Watson Cheyne, at the same meeting, showed the bacilli of tubercle.

In July, he was making some drawings for the ninth edition of Quain's Anatomy. He writes from the Hospital, on July 25, to Mrs. Schäfer, apologising for delay; no ice for the microtome, therefore no drawings for the Professor, who was one of the editors:

> It is to be hoped that the recording angel wept sufficiently to blot out the Professor's language on not finding the drawing among his letters. Fact is, this noble and charitable institution was reduced yesterday afternoon to enough ice for one small but severe emergency, and though the district was scoured as far as Holborn, no ice could be obtained for money or really love, since a Hospital porter could scarcely be expected to develop a sudden affection for an ancient ice-merchant, even to aid in the noble work of illustrating the new 'Quain.'

He contributed two articles this year, 'Zyme' and 'Bacilli,' to Quain's Dictionary of Medicine. But there is more interest in Mr. Bond's account of an observation which, in 1882, was a discovery indeed:

> One hot Sunday in the summer of 1882 I spent at Wimbledon with Frank Penrose. In the course of an afternoon ramble, Penrose and I noticed a mouse sitting, in a partly

conscious condition, with a roughened coat, on the side of the railway bank near Penrose's house. The mouse was so ill that it allowed me to pick it up, and we examined a drop of its blood under the microscope on reaching the house. We found the blood crowded with actively moving trypanosomes (probably Lewisii), and I took several films back with me to London. Penrose showed a slide next day to Ray Lankester, who was at that time Prof. of Zoology in the College. Horsley took a great interest in the investigation : he stained a number of films to show the parasite, and in his cheery way wrote a large label on one slide, *To C. J. Bond, from his devoted admirers.*

In October, he and Bond got the delight of a holiday in Italy. They had planned for Egypt, hoping to see something of the military surgery of the Egyptian campaign ; but this plan failed, so they went by sea to Genoa ; then Pisa, Naples, and Pæstum, then Rome, and back through Florence, Venice, and Milan. Horsley had armed himself with a revolver against possible—in 1882 not impossible—brigands, and on board ship the two young men were allowed to practise with it. Town or country, they made good use of their time : but the holiday was too much of a rush. Mr. Bond remembers a visit to the Dohrn marine biological station at Naples ; a walk by moonlight through Pompeii, and a wordy conflict with a sentry ; the malarial look of many of the country children ; Horsley's keen imaginative enjoyment of Rome ; a visit to the laboratory of Marchiafava, who was working at malaria ; and the horrid sight, in a Rome hospital, of maggots, dropped from wounds, on the floor of the ward. In Florence, in the Pitti Palace, they met Lord Leighton, who gave them a discourse on the pictures. Between Florence and Venice, the Po was in flood, and they were rowed over submerged tobacco-fields from one point of the line to another. There are postcards from Horsley to his people : and a long letter to his sister Rosamund, from Rome, telling her everything. It is Imperial Rome that he most cares for ; next in honour comes the Sistine Chapel. He says nothing of Italian art before the time of Michael Angelo ; he has that contempt for Bernini which is natural to youth ; and he is made angry by the dirtiness and the neglect of Rome as it then was :

> The whole town reeks with work by Bernini and his school. . . . Bernini is responsible for 'decorating' the Bridge of St. Angelo with ridiculous figures of angels. Ridiculous because their legs are all in the same position, and their fingers and arms extended like marionettes—'You hold yourself like this,' etc. etc. . . . The remains of the Imperial buildings are, of course, indescribable, the only drawback being the awful state of smash and indefiniteness in which they are at the present time. Fortunately, by means of thorough excavation and by the happy existence of plans, medals, etc., a fairly accurate restoration is possible, but the feeling of every one with any archæological ideas must be unpleasant if not disappointing. Of course one is, to a certain extent, prepared by engravings, pictures, etc., but none of these convey a tenth either of instruction or pity that the actual ruins do. . . . Everywhere in Rome the same thing is to be seen, namely, black ruins crowded round by houses, usually dirty and repulsive in appearance. It is from not appreciating these facts, although one has so often seen them drawn in etchings, Piranesi, etc., that disappointment and regrets come over you. So you had better take this warning.

In November 1882, he moved from Charlotte Street to 129 Gower Street, where he was only a few yards from the Hospital and the College. Here he lived with his friend (Sir) Arthur Whitelegge: a few years later, they were not only friends, but brothers-in-law. Gower Street, in a quiet way, has been helpful to many young physicians and surgeons of the Hospital, making them comfortable till they could make themselves eminent. The house has a pleasant look; and here Horsley put up his name, and stayed till 1885. There was some delay over the brass plate: 'the lazy man who makes them never managed to be at home when I called': but by February 1883 it was on the door.

During his time in Gower Street, he wrote a slashing paper for the Students' Medical Society, 'On the evil effects of Tobacco.' It is unanswerable: his list of the many poisons in the plant, his facts and evidences, his instances from Bertillon, make a heavy indictment. But he is even more concerned with the ethical objections. There is a passage which recalls what was so characteristic of him, his clean fastidiousness—as he said long ago to a friend who was smoking, 'Why spoil the beautiful things on God's earth by

creating such a horrible smell? '—and his aristocratic dislike of all violence done to the natural goodness of things :

> Nothing is more depressing, in the enjoyment of a gloriously fine day and keen, bracing, cool air, than suddenly a cloud of tobacco smoke trailing in front of one's face. To my mind, it is just as objectionable, from an abstract point of view, as the snobbishness of writing one's name on old ruins, and as wantonly mischievous as the wholesale murder of seagulls by so-called sportsmen on our coasts. For it is the destruction of a beautiful thing. With what ulterior object? Why, simply the injurious narcotisation of only one individual of the community.

1883 (*æt.* 26)

With the move to Gower Street, he became more attentive to social life : his letters in 1883 touch the year's interests in art, the Rossetti Exhibition at Burlington House, the performance of Lohengrin at Covent Garden, and of Caste at the old Prince of Wales's Theatre. He writes to Mrs. Schäfer of a plan for a theatre party :

> A ' tea in the North is understood to mean the ' high ' tea of the South, viz. one in which the demoralising action of theine is to a certain extent counteracted by larger than usual doses of food, which it is hoped will have the power of supporting the system during the thrilling scenes of Caste. Of course, I mean the whole party of dissipators to meet here. My landlady, though accustomed to great eccentricities in the way of suddenly providing, likes to know beforehand.

Other letters to her are to say that he cannot come to a party, or to a temperance meeting :

> *July* 18. I found so much to do with the M.R.C.S. youths that I felt obliged to offer them another demonstration, which met with a reception that I must attempt to justify. As they are in great tribulation, I shall not escape before five. *July* 28. I 'm awfully sorry to say that I 've a tea-fight on Monday, in this way—I have instituted this sort of thing, viz. a tea meeting, in order to collect the new clerks in an unofficial way, so that they should fraternise and I should instil into them my notions of surgical note-taking. I am very sorry, as one does not do anything in the way of preaching the Temperance Gospel outside this

place, and the susceptible British public is ready to listen to either Medicine or the Church on this subject.

And there are three letters which are delightful because we have the key to them. The Schäfers had persuaded him to read A Chance Acquaintance, by W. D. Howells: a little work of art so delicate that the young people of the present generation would find it too mild for them. He takes with bewildering solemnity this featherweight story of a broken engagement, and says what he thinks of it :

> *To Professor Schäfer. Nov.* 3. I have read the Chance Acquaintance, and must say I don't like it. The heroine is a vulgar little wretch ultimately guilty of utter meanness. However, am much obliged to you for it, as it extends one's reading. I return it herewith. *To Mrs. Schäfer. Nov.* 5. I think Kitty was vulgar (1) Because she fell in with her odious cousin's plan and actually put on her cousin's CLOTHES ! ! ! ! ! ! to appear BETTER in Mr. A.'s eyes. (2) Because she advanced towards him and encouraged him when really she hadn't made up her mind in the least as to what she really felt towards him, and when she actually had no *real sympathy* with him or his ideas. . . . Fancy rushing into public curiosity the MOMENT it was settled. . . . I think the American notion of people meeting in that sort of way and, without anything like a complete knowledge of each other's ideas and ways of thinking, settling down for life together, is too ridiculous, and, of course, ends *notoriously* in early and frequent separations. . . . I have for some years past watched this side of life on the European and American systems, and am strongly in favour of 'long service.' *To Mrs. Schäfer. Nov.* 8. . . . It certainly never entered my head that Mr. A. was *ashamed* of Kitty when the Bostonians appeared, for it appears to me absolutely impossible that a man COULD be ashamed of the girl he really loved. The thing is so absurd that it did not even *occur* to me.

We require some explanation of this tirade ; and we find it in the light of the fact that he was just engaged to be married. He and Miss Eldred Bramwell, a daughter of Sir Frederick Bramwell, became engaged in October 1883. There had long been friendship : the daughters of the two families had met at Lord Armstrong's country house, and in London houses ; and the Bramwells one summer had taken Willesley. Earlier, the young ladies had gone together to Willesley for a few days' holiday, in which they were to

'do everything for themselves'; and he had suddenly joined them; come, he said, to black the boots and carry the coals and be generally useful. He writes to his sister Rosamund, 'Things always come all right in the end. One can only be aware that the ship is only launched and that life really begins now.' And to Mrs. Schäfer, 'Yes, I was "sick" of, or rather at, your note; but it was because there was not enough of it. My appetite for communications is insatiable. As I habitually feel about 90 per cent. more than I express in words, you will understand me in my most gratefully appreciating the kindness of your postscript. Like all my friends you are too kind, if it were possible. Of course *We* are burdened with theories of existence, and it will be amusing to see what our line will be like compared to the theoretical one.'

Lesser events of 1883 were as follows. (1) On May 26, he became a Fellow of the Royal College of Surgeons. (2) On December 6, Mr. John Marshall gave the Bradshaw Lecture 'On the operation of nerve stretching for the relief or cure of pain.' Horsley made diagrams and microscope-specimens, and some experiments on the dead body, for this lecture; and drawings for it when it was published. (3) On December 13, at a meeting of the Physiological Society, he read notes 'On four cases of injury of the brain, illustrating the position of the motor centres.'[1]

1884 (*æt.* 27)

In this memorable year came the beginning of his work with Professor Schäfer, the beginning of his work with Dr. C. E. Beevor, and his appointment to the Brown Institution.

He published three papers this year. (1) 'On a case of occipital encephalocele, in which a correct diagnosis was obtained by means of the induced current.'—Brain, July 1884. (2) 'On substitution as a means of restoring nerve

[1] See Journal of Physiology, vol. iv. supplement, p. 5. In one of these cases, he had taken a muscle-tracing. 'This showed minimal and maximal contractions of the muscle, most of which appeared to be single waves although the longest (at the end) were of no less than $\frac{3}{10}\frac{3}{0}$ sec. duration. *Query*. Direct discharge from the cortex of the cerebrum through the cells of the anterior cornua of the spinal cord (acting as conductors) to the muscles?'

function, considered with reference to cerebral localisation.' —Lancet, July 5, 1884. (3) 'Consensual movements as aids in diagnosis of disease of the cortex cerebri.'—Med. Times, August 16, 1884. But more effect was produced by his paper at a meeting of the Royal Medical and Chirurgical Society, January 22, 'On the existence of sensory nerves and nerve endings in nerve trunks, true "nervi nervorum."' This paper was much talked of: for it gave a precise answer to a precise question which Marshall had just been asking in his Bradshaw Lecture: 'Have the nerves got nerves of their own? Is the sheath of a nerve sensitive?' There was some evidence, but no proof, of the existence of these nerves of nerves. Horsley, by a then new method of section-staining, demonstrated them in a human nerve. Up to the time of the reading of his paper, he had not found them in sections of animal nerves; and it does not appear that he pursued the enquiry further: there was no reason why he should.

BOSTON MEDICAL LIBRARY JUN 3 1937

Toward the end of the year, he writes to Mrs. Schäfer:

> As regards my 'future existence,' I found that pure Science meant either waiting an interminable time before 'settling' was possible, or it meant more or less exile, and an early marriage. Personally I would rather strike the happy mean, and therefore am busy taking a house in Grosvenor St., the lower regions of which I shall occupy myself, and let the rest until the said settling becomes practicable. There was a determining element also in the fact that Eldred wanted me to go in for Surgery and not pure Pathology. In any case (as you know), I believe that the most solid work in Pathology has been done by men in practice, and at least one will have an idea as to what is more likely to be practically useful in the way of Research.

He was Professor-Superintendent of the Brown Institution for six years, from 1884 to 1890. Things have so changed, that even the name of the Institution is hardly known to the younger members of his profession, and they have no idea of its importance thirty years ago. It was founded by Mr. Thomas Brown of Dublin. He died in 1852: he left a sum of money to the University of London, 'for the founding, establishing, and upholding an Institution for investigating, studying, and, without charge beyond immediate

expenses, endeavouring to cure maladies, distempers, and injuries, any quadrupeds or birds useful to man may be found subject to.' The Institution was to be within a mile of either Westminster, Southwark, or Dublin: and the University of London was empowered to appoint a Committee 'to control the number and cases of diseased or injured animals to be taken charge of, and to decide about the purchase of diseased or injured animals or their carcases for the promotion of science, as well as for to determine about any contingency not hereinbefore provided for relative to the said Animal Sanatory Institution.' The site for the Institution, 149 Wandsworth Road, S.W., was purchased by means of gifts of £2000 from Mr. John Cunliffe and £700 from Professor Burdon Sanderson. The Institution was not established till 1871. The value of the legacy was by that time about £33,000.

By 1871, the study of pathology was very different from what it had been in 1852. The University therefore established the Institution not only as a veterinary hospital for the study and treatment of the diseases and injuries of animals, but also as a centre for advanced physiological and pathological research. They appointed Burdon Sanderson to be its first Professor-Superintendent. After him came Greenfield, Roy, Horsley, Sherrington, Rose Bradford, and Brodie. The present Superintendent is Mr. Twort; whose work on Johne's disease of cattle is well known to all pathologists. These, all of them, are the names of men of science, who would regard human pathology and animal pathology as one and indivisible, and would make use of the experimental method. The hospital department of the Institution was not in any way interfered with or neglected: it was thoroughly efficient, and more than 200,000 animals have by this time been treated as 'in-patients' or as 'out-patients'; but the research department was far beyond the range of veterinary practice, and was concerned with the most advanced study of problems of general physiology and pathology. To be working at the Brown Institution was of itself a notable privilege. There was no Lister Institute: and the science departments of the Medical Schools were

planned not for research but for elementary teaching. The Brown Institution, small and out of the way though it was, had great influence and authority. Special investigations were made there for the Local Government Board, the London County Council, the Army Veterinary Department, the Royal Agricultural Society, the Grocers' Company, and the Royal Society.

Thus it gave Horsley just what he wanted; not only a laboratory of his own, but a little Academy of his own. It put him at the head of a group of diligent young men, each working independently, but all willing to take a suggestion from him. Besides, it made him thoroughly familiar with the diseases of animals. And it brought him into touch, here and there, with public affairs.

But the Institution in later years lost ground, and now is almost forgotten. It never was large enough, nor central enough, to capture the attention of London; the forces of anti-vivisection were brought against it; and it was never free from poverty. Again and again, in his annual reports, Horsley complains of the want of money for its proper maintenance: in the 1887 report, for example, he writes as follows of the want of proper arrangements for the hospital department:

> It will be seen that the gravest operations are attended with a most regrettably high mortality. I have elsewhere dwelt strongly upon the popular delusion that the wounds and surgical treatment generally of the lower animals require less care and attention than those of man. In fact, to ensure the healing of wounds without suppuration and inflammation it is necessary to adopt, as far as possible, the most rigid antiseptic precautions. I have been always very anxious that this fact should find practical expression in the work of our Institution. It has been perfectly possible to carry this out in the laboratory work, the value of which, in many cases, is entirely dependent upon its achievement; but I regret to say that it is impossible in the present state of the Hospital to attempt it in the hope of success. For we have no room or ward which we can set apart for operations, we have no operating tables, we have none save impromptu means for dealing with post-operation surgical emergencies. All these, the essentials of success in modern surgery, would of course be at our disposal, if the public gave to us those

funds which are collected by so-called 'Anti-vivisectionists,' and spent in wanton and mendacious abuse of the Institution and its work.

Later, came the beginning of things as they are now: more advantages for research at the Universities and Medical Schools; the establishment of the laboratories of the Royal Colleges of Physicians and of Surgeons; and the founding of the Lister Institute. It was impossible for the little house and sheds in the Wandsworth Road to hold out against these odds. Last of all came the War. To see the Brown Institution now, is to wish that the University of London would either make an end of it altogether, or keep it, after the War, as nothing more than a veterinary hospital. The pursuit of physiology and pathology has been attracted away from it, and will never come back. In Horsley's time there was a company of men working there: now, the Superintendent is all alone: even the hospital department is at vanishing point. After all, there is nothing to be mourning over. The Institution did good service for many years; it set the standard of research work, and it has only given place to larger and wealthier institutions.

For his own share of the work, Horsley followed three main lines of research. He studied (1) The localisation of function in the brain, and the pathology of epilepsy and of canine chorea. (2) The thyroid gland; with special reference to myxœdema and cretinism. (3) The protective treatment against rabies (hydrophobia). His work on the thyroid gland, and on rabies, was all, or nearly all of it, at the Institution; and was done as it were single-handed. His work on the localisation of function in the brain was in part at the Institution, in part elsewhere; and was done in co-operation with other men.

What he did for the cure of myxœdema, and what he did for the stamping-out of rabies, come first to be described; for they can be isolated from the record of his work for surgery. What he did for the localisation of function in the brain cannot be thus isolated; it is therefore put last, so that the record of his work for surgery may be taken up immediately after it.

V

The Cure of Myxœdema

I

On October 24, 1873, at a meeting of the Clinical Society of London, Sir William Gull read a paper 'On a cretinoid state supervening in adult life in women.' This famous little paper, the first description of myxœdema, is only five pages long, and is concerned with five cases, which he had observed in his private practice. Two of them he described minutely: the other three he had seen, but had not closely studied. All these five patients were women. He was careful not to assert that the condition was peculiar to women: but the title of his paper gave a bias in that direction. In his description of the likeness of these cases — when the condition is far advanced—to cases of cretinism, he referred to the papers by Curling and by Hilton Fagge on sporadic cretinism, *i.e.* cretinism as it occurs in this country, a case here and a case there. Curling and Fagge had noted that in cases of sporadic cretinism which they had studied the thyroid gland was 'atrophied,' or was even 'absent.' In Gull's cases, it was certainly not enlarged; but he could not be sure of more than that. He described his cases admirably: but the condition was new to him, and he did not attempt to explain it:

> It will be noticed that I have designated this state *cretinoid*. My remarks are rather tentative than dogmatical, my hope being that once the attention of the profession is called to these cases, our clinical knowledge of them will in proportion improve. That the state is a substantive and definite one, no one will doubt who has had fair opportunity of observing it. And that it is allied to the cretin state would appear from the form of the features, the changes in the lips and tongue, the character of the hands, the alteration in the



Myxoedema before Thyroid Treatment.

See Dr. Arthur T. Davies's Paper Clin. Soc. Trans. xxv. 1892.



Same Patient, after Treatment.

conditions of locomotion, and the peculiarities, though slight, of the mental state; for, although the mind may be clear and the intellect unimpaired, the temper is changed.

Four years later, on October 23, 1877, at a meeting of the Royal Medical and Chirurgical Society, Dr. Ord's paper was read, 'On Myxœdema: a term proposed to be applied to an essential condition in the "cretinoid" affection occasionally observed in middle-aged women.' Like Gull, he had seen five cases: all of them women: it is possible that one or even two of them were the same that Gull had seen. Two of them had been under Ord's observation up to the time of death; and, in one of these, leave had been granted for a *post-mortem* examination. He thus proved that the thickening of the subcutaneous tissue, and of other connective tissues, was due not to any sort of 'dropsy,' but to the excessive formation of a gelatinous or mucinoid substance. He therefore gave to the disease its name, myxœdema, *i.e.* swelling due to mucin. He noted that the thyroid gland was markedly diminished in all his cases; indeed, in the case examined *post mortem*, it was 'practically annihilated': but he took this to be merely the result of shrinkage, due to compression of the gland by excess of mucinoid substance in the interstices of its connective tissue. He referred, of course, to Curling, Fagge, and Gull; but the real value of his paper was not in its theorising, but in its exact evidence as to the microscopical and chemical changes in the connective tissues.

During the next few years, cases of myxœdema were observed and published, by Charcot and others: and its occurrence in men came to be recognised.

Up to 1882, all that was known about the thyroid gland more hindered than helped the study of the disease. Cretinism was associated, in some cases, with diminution of the thyroid gland: in others, with that huge enlargement of the thyroid gland which is called goitre: in others, the gland was neither notably diminished nor notably enlarged. Endemic cretinism, *i.e.* cretinism permanently settled among a people —as in some parts of Switzerland—certainly had some association with goitre; not all Swiss cretins were goitrous,

but many were: some more, some less. On the other hand, sporadic cretinism did not seem to be in any way associated with goitre: indeed, Curling long ago had emphasised the fact that in his cases of sporadic cretinism the thyroid gland was atrophied, if not 'absent': and Fagge had even gone so far as to suggest that the atrophy of the gland might be the cause, or one cause, of sporadic cretinism, and that goitre might be, on the whole, more antagonistic than favourable to endemic cretinism. In myxœdema the gland was 'diminished'; but that might be a result of the disease. Besides, the gland can only just be felt in the neck. Let the reader try to feel his or her own: it cannot be accurately measured: it can only just be felt.

The problem was insoluble, for this reason, that nobody knew what the thyroid gland was for. Men hesitated even to call it a gland: they called it the thyroid body. It had no duct: it made no visible contribution to the maintenance of the general health. Its anatomical relations, blood supply, and microscopic structure, had been studied to a finish. Every medical student knew that its acini, its ultimate subdivisions, were lined with glandular epithelium, and contained a colloid or mucinoid substance: its lymphatic spaces also contained this substance. There were networks of capillary blood-vessels round the acini; and the look of a microscope-section of the gland suggested that the contents of the acini were obtained from the blood by the epithelium lining the acini, and were re-absorbed into the blood through the lymphatic spaces. But the actual work and office of the gland, its administrative purpose in the economy of the body, were unknown, even to that great master of physiology, Claude Bernard: who writes in his Physiologie Opératoire —the 1879 edition, published in the year after his death:

> The descriptive anatomy, and the microscopical character of the thyroid gland, the facts about its bloodvessels and its lymphatics—are not these as well known in the thyroid gland as in other organs? Is not this true also of the thymus gland, and the suprarenal capsules? Yet we know absolutely nothing about the functions of these organs: we have not so much as an idea of what use and importance they may possess: because experiments have told us nothing about

them: and anatomy, left to itself, is absolutely silent on the subject.

In 1882-83, the problem was brought nearer to solution by a set of facts as unexpected as they were unwelcome. It was found that many experiments had indeed been recently made on the thyroid gland; but they had been made not on animals but on man. The antiseptic method had so advanced surgery that some of the Swiss surgeons had been dealing with goitre by the removal of it *en masse*. Some of these patients, at various intervals after the operation, had shown signs resembling those which had been observed, in England, in cases of myxœdema.

The earliest description of these Swiss cases was given by Professor Reverdin, of Geneva, on September 13, 1882, at a meeting of the Geneva Medical Society. He and Professor Kocher, of Berne, a few days before, had been talking over these 'accidents généraux tardifs,' as Reverdin called them; but had come to no conclusion about them: indeed Reverdin, at this time, had only had one case under his own observation. He was of opinion, in September 1882, that the condition might be due either to the loss of some 'blood-making function' of the gland, or to some injury done by the operation to the nerves in the neighbourhood of the gland. A short note on this meeting of the Geneva Medical Society was published in the Revue de la Suisse Romande.

On April 4, 1883, at the Twelfth Congress of the German Surgical Association, Kocher gave an address 'On the extirpation of goitre, and its consequences.' It was published in Langenbeck's Archiv. He suggested, for these cases, the name 'cachexia strumipriva,' *i.e.* ill-health from loss of the thyroid gland. Like Reverdin, he did not see their full significance: he was inclined, on the whole, to think that the operation had somehow affected the trachea, and thus had interfered with the free exchange of the air in the lungs and impaired the nutrition of the tissues.

During April-June 1883, Professor Reverdin and Auguste Reverdin published in the Revue de la Suisse Romande their 'Note sur vingt-deux opérations de goitre.' They had by this time learned of the English cases of myxœdema, from

one of Dr. W. B. Hadden's writings. They now recognised the more than likeness, the 'rapprochement complet,' between the English cases of myxœdema and their own cases of 'myxœdème opératoire'; and they were convinced that the solution of the problem was to be found in the thyroid gland, and nowhere else. But they were inclined to think that 'myxœdème opératoire' was due rather to the loss of the gland's nerve-influences than to the loss of its chemical influences:

> Si nous tenons compte de ces faits, de l'existence évidente de troubles vaso-moteurs dans nos cas, comme dans ceux de myxœdème, nous sommes amenés à faire jouer un rôle prépondérant aux altérations nerveuses dans la pathogénie de ces accidents, et à en placer le point de départ dans les parties nerveuses de la thyroïde.

On November 23, 1883, at a meeting of the Clinical Society of London, there was a discussion over a case of myxœdema shown by Dr. Drewitt; and Sir Felix Semon called attention to Kocher's observations, and said positively that cretinism, myxœdema, and cachexia strumipriva, were closely allied conditions, having in common either absence or probably complete degeneration of the thyroid gland; and that they could hardly be attributed to any other cause. On December 14, the Clinical Society appointed a Committee to investigate the whole subject. Ord was Chairman, Hadden was Hon. Secretary, and Horsley was a member of the Committee.

It was of necessity, that the investigation should include the experimental study of the healthy gland in healthy animals. Nothing more was to be gained by theorising over cases. The Committee had the evidence of cachexia strumipriva to guide them; but they could not found any exact knowledge of the healthy gland on this half-knowledge of the grossly diseased gland. Some cretins were goitrous: some were not. Some operations for the removal of goitre had been followed by cachexia strumipriva: some had not. Goitre was a great mass of ill-formed connective tissue, with remnants of thyroid gland surviving here and there in it: the working power of the gland was more or less destroyed: but nobody knew what that working power was.

Till they knew what the healthy gland was actually doing, what it really was for, the Committee might investigate any number of cases without being much the wiser. Anatomy, and the microscope, had told them nothing, or next to nothing. Clinical observation, and *post-mortem* observation, and the facts of cachexia strumipriva, had given them, after ten years, a good working theory. In the light of that theory, slowly attained at the expense of mankind, they must begin at the beginning, with the healthy gland; and the pity is, that they did not begin sooner. Now, in 1883-84, at last, recognising 'the hitherto undreamt-of importance of the thyroid gland,' they asked Horsley to study it by the experimental method. They needed a physiologist, and a surgeon: and they had them in him.

II

He began this work in the autumn of 1884, in Professor Schäfer's laboratory: and he continued it at the Brown Institution. He writes to Professor Schäfer of his first experiments: in these, he had the help of another member of the Committee, Mr. (Sir Rickman) Godlee. The letter is undated: a very rare omission with him: it must have been written about October 1884:

> I have started some experiments with Godlee on the thyroid body. Schiff published some papers lately on the removal of the said organ in dogs and rodents, etc., finding that the animals all died and usually with nerve symptoms such as tremors, etc. Well, we did four monkeys last week, and one of them has the said tremors very badly. I have taken a tracing, it looks just like ankle-clonus. . . .

In December, at the University of London, he gave two lectures, 'The Thyroid Gland: its relation to the pathology of myxœdema and cretinism, to the question of the surgical treatment of goitre, and to the general nutrition of the body.' There is something characteristic of him in this comprehensive title. Up to 1884, there had not been, in any country, much study of the thyroid gland by the experimental method; and, in our country, there had been next to none. The few experiments which had been made

over here had been valueless ; partly for want of the antiseptic method, partly because the men who made them had not known what to look for : they had not solved any problem, because no problem had been set to them. Myxœdema set the problem : later, cachexia strumipriva set it in more definite terms. And Horsley, so far as this country is concerned, did more than any man to solve it.

His decision, at the very beginning of his work, to make use of monkeys, is a good example of the value of the imagination in science. Not that his experiments on dogs and cats were in any way contradictory to his experiments on monkeys. He got positive and final evidence, alike in carnivora and in monkeys, that cachexia strumipriva was due neither to any sort of interference with the aeration of the blood, nor to any sort of injury to the adjacent nerves, but to loss of the thyroid gland, and to that alone. But there were well-marked differences, in the incidence and intensity of the results of complete removal of the gland, between the animals less like man and the animals most like man. In the dog, the results came rapidly, and were soon fatal : in the monkey, they showed themselves more gradually, and made a more complete picture. If the phrase may be pardoned, he produced in dogs a condition which men of science could accept as evidence : but he produced in monkeys a condition which the man in the street could accept as evidence.

And though he was unwilling, at this stage of his work, to deny point-blank the possibility that the results of the removal of the gland might come, not directly from the loss of its chemical influences, but indirectly from the loss of its influences over the vaso-motor and trophic nerves, yet he was already beginning to see the whole thing as a chemical process. ' The question arises,' he says, ' whether we have not to do with the simple case of total removal of an excretory organ, with the usual result of death.'

His description of the monkeys must be given in his own words :

> The phenomena which follow thyroidectomy in monkeys are very striking, and may be summarised as follows. At

a variable period after the operation, but averaging about five days, the animal is found to have lost its appetite for a day or two, and, on closer examination, to exhibit slight constant fibrillar tremor in the muscles, of the face and hands and feet more especially. These tremors disappear at once on voluntary effort. At the same time, the animal is noticed to be growing pale and thin, in spite of the appetite returning quickly with great increase; rapidly the tremors increase, affect all the muscles of the body without exception; the animal becomes languid, paretic in its movements, and imbecile. Then puffiness of the eyelids and swelling of the abdomen follow, with increasing hebetude. During these last stages, the temperature, gradually falling, becomes subnormal; and then the tremors gradually disappear as they came. Meanwhile, the pallor of the skin often becomes intense; and, leucocytosis having been well marked, oligæmia follows, and the animal dies perfectly comatose in a variable period, but usually about five or seven weeks after the operation.

In these lectures—which he illustrated with photographs, pulse-tracings, etc.—he compared, point by point, the symptoms produced in animals with the symptoms of cretinism, myxœdema, and cachexia strumipriva in man. He emphasised the importance of the chemical analyses made by Professor Halliburton. The monkeys showed not only a great increase of mucin in the connective tissues, and a trace of mucin in the blood, but a very great increase of mucin in the saliva. There was also marked enlargement of the parotid salivary glands.

He referred, in these lectures, to the work that was being done in Switzerland, Austria, and Italy; especially to Schiff's papers, published in the Revue de la Suisse Romande, February and August 1884. But he did not refer to the one set of Schiff's experiments which was far and away the most important of all. He had not verified them for himself; he could hardly take it for granted that they were authoritative; and he was working on his own lines. Schiff had found that an animal could be safeguarded against some of the consequences of thyroidectomy, by transplantation of a thyroid gland from another animal of the same species. The engrafted gland compensated the animal, more or less, for the loss of its own gland:

> La thyroïdectomie perd ses dangers et une partie essentielle de ses effets si l'on a introduit et fixé d'abord dans la cavité abdominale d'autres corps thyroïdes de la même espèce animale.

Then comes a sentence which is even more remarkable: 'It would be interesting to know whether an emulsion of thyroid gland would not have an analogous effect':

> Il serait intéressant de savoir si des glandes thyroïdes broyées ou écrasées, introduites dans une cavité du corps ou sous forme de clystère par le rectum, n'auraient pas un effet analogue. Les conditions de notre laboratoire ne nous ont pas permis de faire ces expériences, qui pourraient offrir un intérêt pratique. On devrait d'abord examiner si les thyroïdes de nos ruminants ont sur le chien le même effet que les thyroïdes canines.

Here, in print, in 1884, was a clear indication of the way to cure myxœdema: and it is hard to understand why Horsley did not immediately follow it up for all it was worth.

In 1885, he extended and confirmed his work of the previous year: he made two experiments on sheep, and one on a donkey: but especially, this year, he studied the effects of removal of the gland, in relation (1) to the age of the animal, (2) to the temperature in which the animal was kept after the operation. On these two very important subjects he writes as follows, in his Report for 1885 to the Committee of the Brown Institution:

> (1) The effect of removing the gland in the young animal is the rapid appearance of violent nerve symptoms, and death in a few days; in a rather older animal, *i.e.* a one-year-old dog, the symptoms are less violent, later in their appearance, and the animal survives perhaps for a fortnight or three weeks; in a very old animal the removal of the gland simply hastens the torpor of old age; these observations refer to dogs and cats. In the higher animals, monkeys, the operation on a young individual produces the same result as in a young dog; but, as I showed last year, an older animal, if kept under ordinary circumstances, will survive for six or seven weeks, dying at the end of that time of myxœdema. . . . I desire here to draw special attention to the fact that the symptoms of old age, namely, wasting of the actively functional parenchymatous tissues, atrophy, and falling out of the hair, decay of the teeth, dryness and harshness of the skin, tremors, etc., are exactly the most prominent features

of the myxœdematous state, whether it occurs naturally in the human being, prematurely as in cretinism, or artificially as in my experiments on monkeys.

(2) I have kept another series of animals, on whom I have performed thyroidectomy, at a constant temperature of 90° F., and when they exhibited any nerve-symptoms, *i.e.* tremors, etc., placed them in a hot-air bath at a temperature of 105° F. The effect of this has been to lengthen the duration of life (in all but very young animals) to four or five times the extent of that observed in the first series. Instead of living four to seven weeks they now live as many months. These observations refer solely to monkeys. The animals pass through three stages: (1) neurotic, (2) mucinoid, (3) atrophic. The neurotic stage may be scarcely marked: or, if the nerve-symptoms occur, and the animal be put in the hot-air bath, they soon disappear. Next, the animal lives through the mucinoid stage, *i.e.* myxœdematous condition; and arrives in the third stage, the atrophic. The symptoms of the second stage are just as much subdued as those of the first: there is no excessive secretion of mucus, the parotid glands do not swell, and the *post-mortem* examination does not reveal the extensive mucinoid degeneration observed in the first series. Finally, the third, atrophic, stage into which the animal passes is evidenced by great emaciation, functional paresis and paralysis, imbecility, falling blood-pressure and temperature, with death by coma.

I am disposed to regard this fact of the animals passing these neurotic, mucinoid stages, and dying at the end of the atrophic, as the key to the observation that cretins in whom the thyroid gland is very slowly destroyed, and very chronic cases of myxœdema, do not exhibit much mucinoid degeneration.

In 1886, he examined, and disproved, two theories—one old, one new—of the thyroid gland: (1) That its right and left lobes were somehow related to the circulation through the right and left hemispheres of the brain. (2) That its activity was regulated by the recurrent laryngeal nerve. After 1886, he began to be more occupied with other studies, and less with the experimental study of the thyroid gland.

In 1888, the Investigation Committee of the Clinical Society published their long-expected Report on Myxœdema. It is 215 pages long: it includes reports from Halliburton, Horsley, Semon, and Ord; and it gives tables of 109 cases, each case divided under no less than eighty-eight headings. There could hardly be a better example of thoroughness; and

it was everywhere accepted as of authority. Its conclusions were—That the one condition common to all cases of myxœdema was destructive change of the thyroid gland. That the apparent immunity of some patients from cachexia strumipriva, after removal of goitre, might be explained either by the presence of accessory thyroid-tissue, or by accidentally incomplete removal, or by insufficiently long observation of this or that case. That myxœdema was 'practically the same disease' as sporadic cretinism, was 'probably identical with' cachexia strumipriva, and was in 'very close affinity' with endemic cretinism.

But the Report contained not a word of hope of any cure of the disease. It gave to treatment, out of 215 pages, one. A warm room, a warm climate, tonics, drugs to make the skin act, and nitro-glycerin to make everything else act —and there the list ends, and might as well not have begun. It recalls Dr. Scarbrugh's phrase for the eleven physicians round the deathbed of King Charles the Second—*totus medicorum chorus ab omni spe destitutus.*

III

Finally, on February 8, 1890, Horsley published in the British Medical Journal his 'Note on a possible means of arresting the progress of myxœdema, cachexia strumipriva, and allied diseases.' He harks back to Schiff's transplantation experiments, and to similar experiments by von Eisselsberg :

> It seems to me that these observations, of Professor Schiff and of Dr. von Eisselsberg, are of especial value, as they suggest to my mind that possibly myxœdema, etc., may be treated with success by transplanting thyroid tissue into the patient. . . . I would propose, therefore, when opportunity offers, to try transplanting a portion of the thyroid gland from a sheep.

He learned afterwards that Dr. Bircher of Aarau, on January 16, 1889, had practised this method in one case, and that Kocher also had practised it, in one case, in 1883, without success, and in a few cases, in 1889, with one success.

Here at last was the specific treatment of myxœdema.

Not that the transplantation treatment was perfect: for in some cases the transplanted tissue gradually became absorbed, and thus ceased to be efficient. But here was the first rational way of dealing with the disease: and, for certain cases, Horsley was still in favour of it, so late as 1912.

Last of all, in July 1891, at the Bournemouth meeting of the British Medical Association, Dr. George Murray of Newcastle, now Professor of Medicine in the University of Manchester, read his paper, 'On the treatment of myxœdema by hypodermic injection of an extract of the thyroid gland of a sheep.' He refers to a very successful case of transplantation, published by Bettencourt and Serrano, of Lisbon: then he says:

> It seems reasonable to suppose that the same amount of improvement might be obtained by simply injecting the juice or an extract of the thyroid gland of a sheep beneath the skin of the patient.
>
> If we consider that myxœdema and cachexia strumipriva are due to the absence from the body of some substance which is present in the normal thyroid gland, and which is necessary to maintain the body in health, it is at least rational treatment to supply that deficiency as far as possible by injecting the extract of a healthy gland. G. Vessale has made intravenous injections of an extract of the thyroid gland in dogs after thyroidectomy with beneficial results. As far as I am aware, this means of treatment has not before been tried in the human subject. Since suggesting this treatment at the February meeting of the Northumberland and Durham Medical Society, I have been able to carry it out in a well-marked case of myxœdema. Such decided improvement has resulted that the details of the method of treatment employed and the results obtained are worth recording.

He and Horsley had of course been in correspondence over this plan of treatment: there are two letters from Horsley to him:[1]

> *Dec.* 3, 1890. The only experiments I know of on injections of the gland have only produced slight results, similar

[1] Professor Murray has written: 'I first met Horsley when I was a student and house physician at University College Hospital, from 1886 to 1889. I attended his course of practical pathology, and his outpatient practice. He gave me some very useful introductions when I went to Berlin in 1889. Our friendship really began after I had settled in Newcastle in 1890. Ever since then, our friendship has continued, and he

so far as I could see to what might have been caused by injections from any other tissue. However, it cannot do any harm, and I think it would be worth trying, as it is possible from Schiff's results of imperfect transplantation that an emulsion of the gland might possess some of its active properties.

June 22, 1891. I am ashamed to have kept you so long, but I wanted to re-verify one reference, and I have been absolutely unable, principally in consequence of inauguration of a family, to visit the library before to-day. I am very glad to say that the reference only contains a suggestion, not the actual practice. In that, you have only been forestalled experimentally. Thus, Vessale (Centralblatt für Medicinische Wissenschaften, 1891, p. 14) injected the expressed juice of the thyroid into dogs in which thyroidectomy had previously been performed, and he found that the cachectic symptoms did not occur or, if they did, were considerably modified. The clinical reference is as follows—Bettencourt and Serrano (Progrès Médical, 1890, vol. xii. p. 170). These authors, who had adopted the suggestion of grafting the thyroid, suggest that the benefits obtained therefrom are due to absorption of material from the gland, and the same idea had occurred to Schiff and others. Hoping this is not too late for your wants, and that you will publish at once,—I am yours very sincerely.

Murray's paper was published in the British Medical Journal, October 10, 1891; with a note by Mr. E. H. Fenwick on a similar case.

Early in 1892, Horsley published his 'Remarks on the Function of the Thyroid Gland: a critical and historical review.' (Brit. Med. Journ., January 30 and February 6, 1892.) He had already published this review, in German, in Virchow's Festschrift, 1891.

There was still one great improvement to be made in the treatment of the disease: it came in October 1892, when Dr. Hector Mackenzie published his paper, 'A case of myxœdema treated with great benefit by feeding with fresh thyroid glands,' and Dr. E. L. Fox of Plymouth published his paper, 'A case of myxœdema treated by taking extract

always gave me the greatest help and encouragement. I spent many happy holidays with him, as we both were very fond of shooting. He was a most charming host, and the life and soul of the party. He was one of the most unselfish men I ever met, in both scientific and social questions: and was certainly the greatest member of our profession in his generation. By his death I have lost one of my kindest and best friends.'

of thyroid by the mouth.' This method had also been used by Dr. Howitz of Copenhagen : but Hector Mackenzie and Fox discovered it independently of him. Their papers were published in the British Medical Journal, October 29, 1892. During the next few months, little culinary devices were invented to make the dose palatable, till the manufacturing chemists were able to supply the preparations of thyroid gland which are now in use. With these, men and women whose thyroids fail them can take care of themselves : they can treat themselves when they feel the need of it ; they can free themselves from myxœdema to the end of their lives.

During 1893, many cases were put on record ; many patients were shown at medical meetings ; the efficacy of the new drug was proved over and over again. One of the more notable cases, in 1893, was a case of sporadic cretinism, treated by transplantation, by Dr. Lockhart Gibson of Brisbane.

It is twenty years from 1873 to 1893 : from Gull's observation of ' a cretinoid state supervening in adult life in women,' to the general recognition of the cure of myxœdema. The discovery came not from one line of study but from many. Horsley does not stand alone. But it was he who founded in this country the modern study of the thyroid gland : and it was he who first, in this country, suggested the rational method of treatment. Those of his profession who remember the years of ignorance, and the wonder and the delight of the new learning, are not likely to forget what he did in 1884-86 for science, and in 1890 for practice.

VI

The Prevention of Rabies

His work for the prevention of rabies (hydrophobia) was ended and put away when the disease, by the enforcement of muzzling and by quarantine of dogs, was stamped out from this country. Up to that time, he was Pasteur's chief representative and interpreter over here. He, more than anybody, explained Pasteur's method to the British public. It was a position of remarkable authority for him, and him so young, to be the one man in the kingdom able to say, by the employment of Pasteur's test, whether a dog, killed on suspicion of rabies, had or had not been suffering from the disease. Nor did his work stop there: for he also saw many cases of the disease in man and animals, studied its incidence, examined and exposed a much-advertised 'cure,' and fought, in the press and on the platform, and by all ways of influence open to him, till there was nothing left to fight for.

The story of Pasteur's discovery of the anti-rabic treatment has been told many times, and I need not tell it here. I remember him dining with my father, Sir James Paget, on April 21, 1884: Professor Tyndall, Lord Reay, Lord Avebury, and Sir Andrew Clark were of the party, and over the dessert Pasteur described the results which he had already obtained from the experimental study of the disease; speaking very slowly and very gravely, that no point should be missed. Horsley was not there, more 's the pity: of all the younger men, he was the one whose work my father most admired, saying of some of it that it marked an epoch in the history of medicine: but I remember him dining at my father's house in 1887: of course, he took neither wine, nor a cigarette after dinner, and my father looked across the table at him, with affection just touched

with resentment of the unusual, and said, 'Haven't you *one* vice?' Horsley laughed and blushed, and said, 'I'm afraid I've got a great many, Sir James.'

THE COMMISSION OF ENQUIRY INTO PASTEUR'S METHOD

It was on July 6, 1885, that Pasteur, having proved, by a very long series of experiments and control-experiments, that he could immunise dogs against rabies, not only before infection, but during the latent period after infection, ventured to treat his first patient. In April 1886, a Commission was appointed over here, by the Local Government Board, to enquire into Pasteur's method. The members of this Commission were Sir James Paget, Chairman of Committee, Sir Lauder Brunton, Dr. George Fleming, Lord Lister, Sir Richard Quain, Sir Henry Roscoe, and Sir John Burdon Sanderson, with Horsley as Secretary. There is a letter from Sir Henry Roscoe to Sir James Paget, April 12, 1886:

> You will see from the enclosed letters that the Committee can appoint a Secretary with a remuneration of £50, and also that we are to divide our enquiry into two parts: (1) As to the evidence obtainable in Paris relative to Pasteur's discovery; (2) As to further investigations which we may consider it necessary, in consequence of evidence obtained in Paris, to make in this country. Also that we are to report to the Local Government Board the results of our first enquiry before entering on our second. I also enclose letter from Mr. Chamberlain, in reply to a letter from me enclosing your letter. From this you will perceive that all idea of appointing a person in favour with the antivivisectionists has very properly been abandoned.

At the first meeting of the Committee, on April 15, it was agreed 'that a letter should be written to M. Pasteur, informing him of the appointment and purpose of the Commission, and asking him to name a day in the next week on which he could receive some of the members.' The letter was written by Sir James Paget, and was taken to Paris by Burdon Sanderson on April 16. Brunton, Roscoe, and Horsley went to Paris a few days later. The £50 did not,

by a long way, cover Horsley's expenses: but Sir Henry Roscoe's generosity did.

Pasteur, this April, had been suffering miserable anxiety over the Russian cases of wolf-bite.[1] He was heavily overworked, and was beset by a host of critics, many of them downright fools. All this, coming to a quick-tempered man, already burdened with ill-health and with griefs of his own, made him what Horsley lightly calls 'irritable': and the visit of the Committee was not well-timed.

It is certain that they went with no sort or kind of ready-made belief in the method. 'I went over,' said Brunton, many years later, 'perfectly convinced that Pasteur was wrong: but I came away perfectly convinced that Pasteur was right.' Horsley likewise went over in doubt. No micro-organism of rabies had been discovered: the method was in accord with the principles of bacteriology, but did not follow the usual procedure of bacteriology: but he came back with perfect confidence in it. That Burdon Sanderson went over in doubt, is plain from his letter, a day or two after he reached Paris, to Sir James Paget:

> I was present during M. Pasteur's inoculations of about one hundred persons, all supposed to have been bitten by rabid dogs—one by a wolf. Each of these persons received half the contents of a subcutaneous syringe of sterilised bouillon, in which the spinal cord of a rabbit which had died of 'rabies' was suspended. Of the thousands of persons

---

[1] 'During the early part of March, Pasteur received nineteen Russians, coming from the province of Smolensk. . . . Five of these unhappy wretches were in such a condition, that they had to be carried to the Hôtel Dieu. . . . Because of the gravity of the wounds, and to make up for the time lost by the Russians before they started, Pasteur decided on making two inoculations every day, one in the morning and one in the evening. . . . Their condition was the more alarming, that a whole fortnight had elapsed between their being bitten and the date of the first inoculations. Statistics were terrifying as to the results of wolf-bites, the average proportion of deaths being 82 per 100. General anxiety and excitement prevailed concerning the hapless Russians, and the news of the death of three of them produced an intense emotion. Pasteur had unceasingly continued his visits to the Hôtel Dieu. He was overwhelmed with grief. . . . As he passed through the wards, each patient in his bed inspired him with deep compassion. And that is why so many who only saw him pass, heard his voice, met his pitiful eyes resting on them, have preserved of him a memory such as the poor had of St. Vincent de Paul.' (Vallery-Radot, *Vie de Pasteur*.) It is to be noted that the three who died had received only the 'ordinary treatment': the sixteen who recovered had received the 'intensive treatment.'

who have been so injected, none have experienced either local or constitutional effects of any kind. I asked Pasteur afterwards whether he could give us a few cases and groups of cases to investigate as regards their antecedents. He agreed, and has given me the addresses and photographs of eleven persons in the neighbourhood of Paris. . . .

In the afternoon I witnessed the inoculation of rabbits, which is done very skilfully by M. Pasteur's laboratory servant. It never happens that the rabbits get meningitis. They have no symptoms whatever until the sixth day or later, after which what P. calls paralysis comes on and the animal dies a few days later. Such a rabbit affords a material which, on the one hand, can be injected into a human being, if 'prepared,' with impunity, and on the other produces a specific and infallibly fatal disease in the rabbit, which proves itself to be rabies by producing rabies in the dog.

This fact (if a fact) appears to me to be the nucleus which includes everything. If it is true, there can be no reason for doubting the evidence supplied by cases. But in case it should be found not to be true, case evidence would go for nothing.

On April 24, Horsley writes to Sir James Paget from the Hotel Louvois : [1]

As Dr. Sanderson left for Blois on Friday night, it is just possible he has not written to you as he thought of doing ; I will venture, therefore, to express what he talked of saying to you.

M. Pasteur expressed some chagrin that neither yourself nor Sir Joseph Lister had come to see him and his work in connection with the investigations of the Commission. This fact would not have so much importance, were it not that M. Pasteur is in a very irritable state, and we are much afraid that the request which we intend to make before we leave (*viz.* to be given a rabid spinal cord, and an inoculated rabbit)

[1] Mr. J. A. Fuller-Maitland writes : 'I only met him once, but it was in rather favourable circumstances, at a small bourgeois hotel in Paris, the 'Louvois,' which has now blossomed out into a pretentious and rather tiresome place ; where were also the Burdon Sandersons, who being connections of mine, introduced me to Horsley. He was fearfully excited about a discovery of a whole slice or section of a Roman amphitheatre in the middle of a triangular block of houses out of the Rue Monge. The inhabitants had complacently looked out of their back windows upon this archæological treasure, and said "nothing to nobody" for years. Then came a tramway company, and wanted to use the space inside the triangle for their cars, when, lo, they found this slice, all complete, from the numbered seats at the top, to the wolves, "Christian," and other boxes at the bottom ! At least that is my impression, but I don't think I ever got (or perhaps couldn't get) permission to see it myself.'

will be refused unless he cools down a little. He was very kind on Friday—sat for 1½ hours giving me cases to look up, on which work I am now engaged, and, so far, have had fair success. Yesterday, for instance, I investigated the effects of nine different dogs. I may, perhaps, now say that Sir Henry Roscoe was of the opinion that if you could run over (if only for a day) it would be of the utmost service: and this was the point of Dr. Sanderson's letter which he proposed to write to you. Pasteur does practically nothing on Sundays.

All this week I shall be engaged in hunting up cases in the immediate neighbourhood of Paris, and then on Saturday I shall go to Lyons and St. Etienne, which are very striking foci of the disease, and where, fortunately, I have considerable official interest which will greatly expedite my researches. I have altogether about 100 cases to look up. M. Pasteur has inoculated about 850 *individuals* representing, I suppose, about 250 dogs, wolves, and a few cats. The wolf cases, of course, are out of the question, being in Russia. Unfortunately, too, the next largest focus in France is the Basses Pyrénées, which is at an inconvenient distance. I have hired a light vehicle and a good horse for the day, *i.e.* 8.30-6.30, and, so far, have found that very little time is lost.

Will you kindly tell Miss Paget that I presented her affectionate compliments to Pasteur, but as one of his Russian patients (bitten by a *dog*) was dying then, he was rather irritable, and (as possibly my accents, intended to be especially polite, were, equally certainly, especially British) he smiled but little.

On April 29, he writes to Mrs. Schäfer, thanking her for her congratulations on his nomination for the Royal Society:

As it was quite understood I thought—from what my counsellors told me—that I had no chance this time, it came as a tremendous blessing. My one idea now is to hope that the Society will duly elect me on June 4th—a dreadfully long time for them to change their minds in, if so inclined. Let 's hope they won't. I trust it will hasten matters in the hymeneal direction, a road which is not very clearly marked in my mental map of future events. Will you tell your professorial lord that I shall be ready to do any number of experiments on Saturday morning, *i.e.* the 8th, and possibly on Friday, but of that I will advise him by telegram. Fact is, I run about from 5 A.M. to 6 P.M., and then all the evening write reports of the notes I have made in the day. I think I have never seen so much physical and moral degradation in my life as in the last ten days. This place Paris, which I

thought I knew pretty well, is a perfect sink literally and metaphorically.[1] Please excuse my dilating further, as I might, on what I have seen which is pleasing. I am very sorry to ask it, but I have so much to write I am afraid of going to sleep.

On May 4, he writes again to Sir James Paget: good news, this time:

You will be glad to hear that Pasteur (who, two days ago, refused Dr. Sanderson what we asked for, viz. a rabbit's spinal cord) offered me anything to-day. He told me (I returned from Lyons this morning early, Dr. Sanderson left yesterday) that he had not understood what Dr. Sanderson wanted. It has occurred to me that your letter to him may have arrived to-day, and that that was the cause of the fortunate change. However, he certainly did not understand what would be the feeling of criticism in England if we had simply brought back two dogs inoculated with what, of course, purported to be the medulla of a rabid rabbit, which was what was finally decided upon (as, of course, much better than nothing) by Dr. Sanderson. However, he will now give two rabbits, so that I can start the experiments from the *Rabbit*, and that will be everything.

He came back to London a day or two later, and started his experiments at once. Among his papers are twenty-six letters from Pasteur, between May 1886 and July 1887: and a letter from Sir James Paget, September 12, 1886, from St. Sauveur, Pyrenees:

I never felt less like the Chairman of a Committee than I do now, writing in this lovely scenery, with open window and doors, in a really delicious cool air; but I had better pretend to be in my place and say that I think you have done quite right with the bitten man. I only wish that you could yourself have treated him, for one case inoculated by yourself in England would have had great persuasive power with some English people.

And there are three letters from Pasteur to Sir James Paget, between May and August 1886. The first of them is to decline an invitation to England: the other two are to explain his impatient desire that the Committee should bring out their Report with all possible speed:

[1] He was made sick and furious by a man who offered to show him 'the night-side of Paris': and at a theatre—some friends having taken him to a play which offended him—he walked out in the middle of it.

Paris, le 8 *mai*, 1886. Cher et vénéré maître, je reçois votre aimable lettre où vous avez l'obligeance d'accumuler séductions sur séductions. Certainement j'ai bien besoin de repos et j'aurais un grand plaisir à aller pour quelques jours en Angleterre. Mais pour le moment c'est impossible. Je suis pris dans un engrenage dont je ne puis sortir. Je songe cependant sérieusement à remettre en d'autres mains l'application de la méthode de prophylaxie. Mais que de peine j'aurai à m'en désintéresser ? Recevez, je vous prie, l'expression de ma reconnaissance et celle de Mme. Pasteur, et de mon affection.

J'attendrai avec une certaine impatience l'effet que produira sur le public anglais le rapport de la Commission dont vous faites partie. Voyez, par l'article, ci-joint, extrait du journal français, *Le Temps*, tout ce qui se passe chez vous et chez nous. On imagine difficilement l'hostilité sourde ou publique à laquelle je suis voué par cette découverte de la prophylaxie de la rage après morsure. Un journal belge, rempli de mensonges et de calomnies odieuses, a été jusqu'à insérer dans ses colonnes une provocation à l'assassinat sur ma personne.

Heureusement, j'ai de quoi m'en consoler de ces turpitudes en pensant que je touche au nombre de mille personnes déjà traitées, et que je n'ai pas eu à déplorer un seul accident dû au traitement ; que sur la jeune Pelletier seule, traitée 37 jours après une énorme blessure à la tête et à l'aisselle droite, le traitement a été inefficace ; ainsi que sur quelques russes mordus par des loups enragés à la tête et au visage.

Présentez, je vous prie, mes très respectueux hommages à Mme. et à Mlle. Paget, et recevez, vous-même, l'expression de tout mon respect.—L. PASTEUR.

Paris, le 12 *août*, 1886. Cher et illustre maître, j'ai déjà manifesté au Profr. Horsley, non sans quelque impatience, le désir de voir paraître le rapport de la Comm^{on} anglaise. Comme il me remet de mois en mois, je prends la liberté de venir vous dire le motif de ma hâte de connaître le rapport.

Je l'attends impatiemment parce que, dans la conviction qu'il sera favorable de tout point à ma méthode de prophylaxie, je veux m'aider de ses termes et de ses conclusions pour faire au gouvernement anglais une proposition hardie.

Je lui demanderai l'autorisation de vacciner tous les chiens de l'Ile Maurice, puis de prendre des mesures de surveillance à l'égard des chiens qui seraient ultérieurement ramenés dans l'île.

Je sais que, sur les chiens, comme sur les hommes, la rage est fréquente dans cette île. Ce serait là une grandiose expérience qui serait un acheminement à la vaccination de tous les chiens et à l'extinction de la rage, qui n'est jamais spontanée.

Recevez, cher et très éminent maître, l'assurance de ma haute considération et veuille présenter à Mme. et à Mlle. Paget l'hommage de tout mon respect.—L. PASTEUR, 45 *rue d'Ulm, Paris.*

Arbois (*Jura*) 20 *août*, 1886. Cher et très éminent maître, je m'empresse de vous remercier des excellentes et très utiles indications que vous voulez bien me donner au sujet de mon projet de vaccination des chiens dans une île où la rage est fréquente, l'île Maurice, de préférence. J'attendrai patiemment le rapport de la Commission, et je vais me mettre en mesure, comme j'en informe M. V. Horsley, de lui envoyer, pour la Commission, la liste de toutes les morsures (celles des loups comprises) qui ont eu une issue fatale, malgré le traitement. Je ne prendrai que très peu de jours pour ce travail. Votre très dévoué confrère, L. PASTEUR.

The island which finally served to demonstrate the stamping-out of rabies was not Mauritius, but Great Britain. That was the central fact of Pasteur's teaching, for us who live on an island : *La rage n'est jamais spontanée* ; rabies cannot come of itself ; we over here, by muzzling, and by quarantine of imported dogs, could both kill off rabies and keep it from coming to life again. There was no hope of muzzling wolves in Russia, or pariah-dogs in India, and there was no hope of preventing rabies from getting across the frontier between one Continental nation and another. But we, with the sea for our frontier, could and did stamp out rabies by Government orders enforced by the police. As Horsley said, many years later, in his evidence before the second Royal Commission on experiments on animals :

> The freedom of England from rabies I take to be one of the great achievements of modern science, and we owe it entirely to M. Pasteur. . . . When the Committee was in Paris, M. Pasteur said to us, 'Why do you come here to study my method? . . . You do not require it in England at all. I have proved that this is an infectious disease : all you have to do is to establish a brief quarantine covering the incubation period, muzzle all your dogs at the present moment, and in a few years you will be free.' When the Committee returned and reported to the Houses of Parliament, this point, of course, was always before us.

The Report of the Commission of Enquiry was published in June 1887, and was presented by Pasteur on July 4 to a meeting of the Académie des Sciences. A few weeks

before the Report was published, he had written again to Sir James Paget :

> . . . Je n'ai pas besoin de vous répéter ce que j'ai dit au Professeur Horsley, que le rapport de la Commission anglaise aura une importance très grande, une importance particulière, sur l'opinion publique. Depuis mes études d'autrefois sur la question des générations, dites spontanées, depuis que les ' intransigeants ' n'osent plus s'élever de la matière minérale à la cellule vivante et de proche en proche au singe et à l'homme, au nom de la science, je suis leur *bête noire*. Tout le parti politique est irrité contre moi. Joignez-y les anti-vaccinateurs, les anti-vivisectionnistes, les médecins envieux et ignorants, et vous aurez une idée affaiblie des calomnies qui me poursuivent et des mensonges que l'on accumule contre la méthode de prophylaxie de la rage.

The Report of the Commission says that Horsley's experiments, begun in May 1886, ' entirely confirm M. Pasteur's discovery of a method by which animals may be protected from the infection of rabies. . . . It would be difficult to overestimate the importance of the discovery, whether for its practical utility or for its application in general pathology.' Of the protective treatment of persons bitten, the Report says :

> Between the end of last December and the end of March, M. Pasteur inoculated 509 persons bitten by animals proved to have been rabid either by inoculation with their spinal cords, or by the deaths of some of those bitten by them, or as certified by veterinary surgeons. Only two have died, and one of these was bitten by a wolf a month before inoculation, and died after only three days' treatment. If we omit half the cases as being too recent, the other 250 have had a mortality of less than 1 per cent., instead of 20 or 30 per cent. . . . From the evidence of all these facts, we think it certain that the inoculations practised by M. Pasteur on persons bitten by rabid animals have prevented the occurrence of hydrophobia in a large proportion of those who, if they had not been so inoculated, would have died of that disease. And we believe that the value of his discovery will be found much greater than can be estimated by its present utility ; for it shows that it may become possible to avert by inoculation, even after infection, other diseases besides hydrophobia.

The Report of the Committee of the House of Lords, which was concerned only with administrative measures, was pub-

lished a few weeks later, in August. This Committee held nine sittings, and examined twenty-eight witnesses. The evidence of Brunton, Fleming, Horsley, and Whitelegge, is good reading now, across the thirty years since 1887.

In February 1889, at a meeting of the Epidemiological Society, Horsley read a paper on rabies, and on Pasteur's method. He spoke of the occurrence of paralytic rabies in man : and of the intensive treatment. ' It is evident that the intensive treatment is very successful in coping with the worst cases ; and that instead of being itself a cause of death, as asserted by those who gain notoriety and subsistence by vilifying and misrepresenting scientific progress, it is a powerful agent in saving life.' He went into two cases, sent from our country to Paris, in which the treatment had failed. These two cases had been much talked of, and much that was false had been said about them.[1] A full account of Pasteur's work was also given by (Sir) Armand Ruffer at the annual meeting of the British Medical Association in Leeds.

On July 1, 1889, a meeting was held at the Mansion House, the Lord Mayor, Sir James Whitehead, presiding. Horsley moved one of the resolutions—that the Government should be invited to introduce a Bill for the simultaneous muzzling of all dogs throughout the British Islands, and for the establishment of quarantine, for a reasonable period, of all dogs imported. At this meeting a fund was started for a donation to the Pasteur Institute, which had just been inaugurated, and for the help of necessitous patients who could not otherwise afford to stay in Paris for the treatment. In November 1889, the sum of 40,000 francs was sent to the Institute.

Our country had not a ' service de la rage,' a centre of its own for the protective treatment against rabies. Our cases went to Paris. For the employment of Pasteur's test, we had Horsley. There was Pasteur in the rue d'Ulm, and later in the rue Dutôt ; and there was Horsley in the Wandsworth Road : and that, for the practical purposes of anybody in this country who had been bitten by a dog either

[1] See also the paper by Horsley and Bristowe, read at a meeting of the Clinical Society, November 9, 1888, ' A case of paralytic rabies in man ' (Clin. Soc. Trans., xxii. 38).

mad or supposed to be mad, was all that there was. Horsley had the two rabbits from the rue d'Ulm. By transmission of rabies from them, he was able to demonstrate and uphold Pasteur's method over here, and to employ Pasteur's test: and at every step of his work he could say of his dogs and rabbits what Villemin, in 1865, said of the rabbits on which he demonstrated the infectivity of tubercle, 'En voici les preuves.'

HORSLEY'S WORK ON RABIES AT THE BROWN INSTITUTION

It was in May 1886, that he began the experimental study of the disease: but his practical acquaintance with it began with his appointment to the Institution, and his reports of the work of the Institution, from 1884 to 1890, all of them call attention to it. The writing of these reports seems to have troubled him: 'The Moloch of the Annual Report,' he calls it, 'which rests on my shoulders like the Old Man of the Sea'—a fine confusion of images. The statistics of the hospital department were provided for him by Mr. Ernest Batt, the veterinary surgeon to the Institution. The reports are concerned, of course, with the whole output of each year's work, both in science and in veterinary practice: rabies only comes in as one of many subjects.

In 1884, near the end of the year, there was a slight outbreak of rabies in London. Of nineteen rabid animals brought to the Institution during the year, nearly all came during the few weeks of the outbreak, and many other animals in the neighbourhood were known to have been bitten.

In 1885, the number of rabid animals was seventeen:

> Although rabies has not been quite so prevalent in this district, it has raged in other parts of London, particularly in the N.W.; and it is a matter for congratulation that the attention which was first drawn by the Brown Institution to the disease has had the effect of causing the authorities to attempt to stamp out the disease. Since the enforced seclusion of dogs, there has been but one case at the Brown Institution, and from other districts a sensible diminution is reported.

In 1886, there was a notable decrease of rabies and therefore of hydrophobia. Only five rabid animals were brought to the Institution, and there were only nine deaths from hydrophobia in London, against twenty-six in 1885. Moreover, the muzzling order of November 1885 had reduced not only rabies but also distemper :

> The statistics of the Institution show an unforeseen proof of the value of the police regulations, especially with regard to the immediate destruction of ownerless dogs. Distemper, the most contagious disease among the carnivora, and not only very frequently a fatal malady, but also one which produces the most lamentable sequelæ, *e.g.* blindness, chorea, etc., has diminished by more than one-third of what it was in 1885.

During 1886-87, at the Institution, Mr. G. F. Doweswell tested the action of many drugs on rabies : he found that it was neither prevented, nor influenced—unless it were for the worse—by any of them. In 1886, he believed that he had discovered the germs of the disease : and Horsley for a time was inclined to share this belief.

In 1887, there was only one case of rabies. But the disease was beginning to work its way from Surrey into South London : and, while rabies was slowly reasserting itself, distemper, having only a short period of incubation, was rapidly reasserting itself. This year, Horsley established the use of Pasteur's test—the subdural inoculation of a rabbit with spinal-cord tissue from a case of rabies. Before 1887, it could always be said, ' Are you sure that the animal was really rabid ? Are you sure that the man really died of hydrophobia ? ' To these questions, Horsley, and he alone in our country, gave the final answer. If a minute portion of spinal cord, taken from the dog's body, or from the body of the man, were put under the dura mater covering the brain of a rabbit ; and if the rabbit, after the predicted number of days, developed the predicted form of the disease —this evidence was all that was needed. In 1887, he applied this test to 23 specimens, sent to the Institution from all parts of the country (4 human, 2 cows, 1 horse, 16 dogs). In 5 of the dog cases, the result was negative ; in the other 18 cases, it was positive.

In 1888, there were 4 cases of rabies brought to the Institution, and 13 specimens were tested (2 human, 1 deer, 1 heifer, 9 dogs). In the heifer case, and in 5 of the dog cases, the result was negative ; in the other 7 cases, it was positive. Horsley's report for 1888 was not in print till May 1889 : by which time, rabies and distemper were both of them on the increase :

> Already the deaths among human beings are rising in London, three having occurred during December 1888-February 1889. Urgent representations should be made to the Privy Council to ensure adoption of universal restrictive measures, which, as has been proved *ad nauseam*, are perfectly adequate to stamp out the disease.

In 1889, cases of rabies 4 : specimens tested 20 (1 human, 2 deer, 17 dogs). In 8 of the dog cases, the result was negative ; in the other 12 cases, positive. The general outlook was brighter. Horsley's report for 1889, printed in July 1890, says :

> The Board of Agriculture, which replaced the Veterinary Committee of the Privy Council at the beginning of 1888, applied in July (1889) the muzzling regulations to all centres of the disease, and to the surrounding districts. The result has been most favourable, not a single death among human beings having been recorded in London since January 1 of the present year (1890).

The muzzling regulations had also brought down distemper :

> The mode of infection in distemper is by contact, the nasal discharge containing the virus. The muzzling regulations of 1889 have already effected a most marked diminution in the number of dogs and cats admitted suffering from this disastrous disease. It is to be hoped that the beneficent action of the muzzle will be allowed to continue, and that the absurd and cruel fallacy that a dog must have the distemper will die out with the disease.

In 1890, no case of rabies was brought to the Institution : 14 specimens were tested (2 human, 1 sheep, 11 dogs). In the sheep case, and in 4 of the dog cases, the result was negative ; in the other 9 cases, it was positive.

> As regards rabies, our returns show that not a single case of that disease was admitted during 1890, while distemper

has very greatly fallen, and indeed the present moderate amount of disease is maintained by its being prevalent among cats, the amount of cases among dogs being very notably diminished.

Fortunately the public has learnt so much from its experience of the beneficent action of the regulations since 1885, that the discreditable anti-vivisectionist agitation against the muzzle will not mislead in future those who are ignorant of the manner in which these specific diseases are communicated from animal to animal.

THE OUTBREAK OF RABIES AMONG THE DEER IN RICHMOND PARK, 1886-87

Up to the time of this amazing outbreak, rabies had never been identified among deer, either in this country or in France or in Germany: but there had been outbreaks among deer, in this country, of a disease which, after 1886-87, was judged to have been rabies.

The Richmond Park disaster occurred toward the close of a serious outbreak of rabies among dogs in London and the suburbs. An admirable account of it is given by Mr. Cope.[1] The number of deer in the Park was about 1200, in herds of from 100 to 200: the herds mostly kept away from each other: they rarely intermixed. The Park is open all day: it would be easy for a dog to get in and bite one or more deer and get out again. The outbreak began in September 1886: the keepers found a doe, which was suckling a fawn, 'staggering about in the herd pasturing near the entrance gate at East Sheen.' Mr. Cope's report goes on to say:

> Some days after the death of this doe, the keepers noticed others of the deer in the same herd behaving in a very erratic manner. At first they were constantly rubbing their heads against the stems of trees or on posts, and with such force that their hair was in some cases entirely removed. They were frequently seen to be biting the skin about their shoulders and bellies until they were perfectly raw, tearing out their hair, and at times they charged at the other deer. . . . The

[1] Reports on the Outbreak of Rabies among Deer in Richmond Park during the years 1886-7. By Mr. A. C. Cope, Chief Inspector, Agricultural Department, Privy Council Office, and Professor Victor Horsley, F.R.S., Professor Superintendent of the Brown Institution. London, Eyre and Spottiswoode, 1888. Pp. 16.

disease spread slowly through the herd, the animals dying at the rate of four a week; and by April 1887, 160 had died.

It was not till April 1887 that Mr. Cope was asked to investigate the disease:

> It being impossible to devote sufficient time in the Park to study the symptoms and nature of the disease, a buck and a fawn were forwarded to the Royal Veterinary College; the fawn, however, died four hours after admission. . . . The medulla of this animal was taken to the Brown Institution, where under the direction of Professor Horsley rabbits were inoculated, which died of rabies. The buck became so wild and violent that the persons in charge were unable to enter the loose box in which it was placed. This animal died two days after its arrival, and other rabbits were inoculated with portions of its spinal cord, with the same results as in the former case.

At Mr. Cope's request, a dog was inoculated. The rabbits had died of paralytic rabies, the usual form of the disease in rabbits. The dog died of violent rabies, the usual form of the disease in dogs.

In June 1887, the disease appeared in another herd, which had been grazing in the Park next to the herd first infected. Altogether, no less than 264 deer died of rabies. Horsley had three under observation at the Brown Institution: one of them, before admission, had been seen to bite another of them about the neck and ears.

These 264 cases of rabies in deer, and Horsley's authoritative work during the outbreak, have long been forgotten: indeed, the whole picture of rabies in herds of deer close to London must look strange to modern Londoners.

THE 'BOUISSON BATH TREATMENT'

In 1888, he examined and exposed the 'Bouisson Bath Treatment for the Prevention and Cure of Hydrophobia.' It was the invention of a French doctor who had persuaded himself that he was suffering from hydrophobia—there are many such cases on record—and had sought to kill himself in a vapour-bath, and had found that he was 'cured.' Horsley published his results in the British Medical Journal, June

9, 1888. He was bound to take the matter seriously: for the Bouisson Bath was advertised far and wide[1]:

> As might be supposed, its adoption is principally urged by those who are, for obvious reasons, opposed to the advancement of science, the paid antivivisectionist agitators. These persons spread broadcast glowing misrepresentations of the system, and raise, as I have myself seen, many false hopes, and so cause much pain in the minds of the patient and his friends. . . . What the 'antivivisectionists' clearly desire is that the profession at large should make a series of experiments on man to see whether this Bouisson treatment is worth going on with or not.

He therefore studied the influence of vapour-baths on animals inoculated with rabies: in some of them the disease was still latent, in others it had already declared itself: he could thus judge whether the treatment had any effect either to prevent or to cure the disease:

> I was careful to carry out this treatment, not only therapeutically, but also prophylactically, but I regret to say that it favoured rather than hindered the course of the disease, death being invariably the result in each case.
>
> The experimental method adopted was as follows. I inoculated by the usual subdural method eleven animals with what M. Pasteur calls the *virus fixe*—that is to say, the pure virus of the disease, which, in the series that I possessed, produced its first symptoms almost invariably upon the eighth day after inoculation; sometimes, but more rarely, on the ninth day. I also inoculated three rabbits with virus taken from the medulla of rabid dogs of the street, such virus usually producing, as is well known, its first symptom about the sixteenth day, but in certain rarer instances, in the manner of the *virus fixe*, from about the seventh to the ninth day. These fourteen animals I placed in a hot-air bath, according to Dr. Bouisson's suggestion, directly they showed the first distinct symptoms of the disease.
>
> Finally, I inoculated two other animals with the *virus fixe*,

[1] A Bouisson bath was installed at the 'Anti-vivisection Hospital.' The editor of one of the anti-vivisection journals published a statement, 'The treatment is simplicity itself: it is merely the use of the vapour-bath, which causes a free action of the skin to be set up; this draws the blood to the surface of the body, and so relieves the congestion of the internal organs.' And the chairman of one of the anti-vivisection societies published a statement that the treatment was 'founded on the common-sense principle that if poison is injected into a person's veins the best thing is to get it out as quickly as possible.'

and on the third day after inoculation commenced prophylactic treatment with the hot-air bath. This treatment antedated by two days the onset of the symptoms, and so expedited the fatal results.

Except that the treatment slightly raised the temperature and quickened the respiration, its only effect was to exhaust the nerve-centres. It thus had a slight sedative influence: but it tended to hasten death. He found records of two cases in which it had been tried on man: in one, the patient was quieted for an hour or so: in the other, the patient complained of the heat of the bath, and would not let it be repeated: both patients died.

THE SOCIETY FOR THE PREVENTION OF HYDROPHOBIA

The anti-vivisectionists also upheld the false belief that rabies could 'come of itself.' For instance, one of the anti-vivisection witnesses before the Committee of the House of Lords said that hydrophobia was 'a condition arising in the course of various diseases'; and that if he broke his leg, he might get hydrophobia from that injury. This belief commended itself to the opponents of the muzzling of dogs: and they and the anti-vivisectionists were represented by the Dog Owners' Protection Association. Against this Association, in the autumn of 1886, the Society for the Prevention of Hydrophobia and Reform of the Dog Laws was formed: and Horsley became Chairman of its Committee in January 1887. On the Committee were Fleming, Everett Millais, Penberthy, Briton Rivière, Romanes, and Tyndall. The Hon. Secretary was Mr. Karslake: Horsley's many letters to him, from 1886 to 1891, are full of angry contempt for his adversaries—as he profanely says of the death of one of them, 'What a divine blessing that —— has been taken away.' Horsley had seen more cases of rabies and hydrophobia than all the members of the Dog Owners' Protection Association together had seen.

1886. *Dec.* 22. I could not go to the meeting of our opponents to-night, but it will be a loss if we cannot get an amendment moved to whatever absurd resolution they pass. This rescinding of the Muzzling Order is most unfortunate

and ill-advised. *Dec.* 27. Thanks very much for the Press notices and report of the Enemy's Council. It struck me as being very feeble from the reports even. If I have long enough notice to prevent other engagements I shall be very happy to go with you another time to have a shy at them. . . . By the way, I lecture on Jan. 31 at Kensn. Town Hall on Hydrophobia, on behalf of the Church of England Waifs and Strays Society. You had better let me have a few prospectuses to distribute on the chairs galore. The Dog Owners' Protection Association will hear a few plain truths if they come, and I hope they will.

1887. *Dec.* 13. The Dog Owners' report is lovely to read. I suppose that little idiot —— found himself getting into queerer water than even he liked. That awful lie about Nottingham could best be met by sending to all their subscribers, say 270 in number, my brother-in-law's report about Nottingham. *Aug.* 29. Let the Echo go to —— well, where it ought to go : papers of that sort make no final impression. I have been thinking over matters relating to our progress, and I think that we have advanced *most* materially. The enemy blaspheme and will, in spite of everything, but we are really advancing.

1888. *May* 8. Since I wrote to you, I was asked by the Govt. to sit on a Comm. of Inquiry into Pleuropneumonia, and not being able to refuse find my time completely swamped and I may say without a halfpenny of return, for the position is purely honorary. Under these circumstances I am really doing enough for an ungrateful country, or to put it in other words I must limit my other opportunities to raking-up bread and butter somehow, so I cannot do the article. Lord —— is a very feeble reed indeed, and was so hipped over the character of the antivivisectionist agitation against our views (he *was* an antivivisectionist some years ago) that I fancy he does not want to identify himself with any agitation. *June* 6. You know I consider that —— is both inane and unreliable, therefore I personally do not wish to have anything to do with him. However, don't misunderstand me. I shall not in any way object to his being interviewed for the purposes of conversion : I only mean that I cannot be the missionary. *Dec.* 6. Urgent. Can you let me know by return the name and town of the Lancashire lady who last year was so courageous in defending children from a rabid retriever and who got severely bitten herself. I am informed that she alone went to Pasteur, and is still alive, whereas the children bitten died. I want to find whether this is true or not, and in a hurry.

1889. *June.* Answer the idiot as follows. The increase of rabies is demonstrated by the police returns of rabid dogs killed. It was shown by these that it was excessive in 1885.

The muzzle was then applied, with extra care in the destruction of stray dogs. —— seems to want to make out that this was done for the first time, whereas it is always going on. The answer to his absurd statement *re* muzzling is that it has been shown both here and abroad that the slaughter of strays alone is not enough and the muzzle is also necessary. The reason is obvious. The stray dogs are *not the only ones* infected. Those cared for by private owners are also diseased, as emphasised strongly by the fact that of recent cases of extensive biting of human beings by rabid dogs, the large majority were by dogs of private owners: some, very well-to-do people. . . . As to this last para., the evidence is that of the police reports. $2\frac{1}{2}$ years ago the disease was temporarily extinguished in London, no case being reported by the police. Since that time the disease, as shown by the same returns, steadily increased until the present spring, when it suddenly increased. Rabies presents two periods of increase: in the spring and autumn. We have just passed the spring epidemic increase, and from our previous experience we must expect another, and a larger one, in November. . . . No panic is sought, and —— has no right to make such a suggestion. It is with the object of preventing a panic, and what is more important, preventing an outbreak of rabies, that we wish the muzzle on now. That will do. He is hardly worth answering. *November.* I hope Millais and yourself will stop to dinner, and we can go down to this absurd meeting afterwards. I will move an amendment with pleasure. . . . Did you ever keep those rascally broadsheets they used to issue denying the existence of rabies? If so, can you let me have one? *Dec.* 29. But just returned from Yorkshire. (1) Don't think appeal is required now. The Government are evidently now on their feet: *vide* total want of opposition. Magistrates I see are now fining 20/- etc. (2) St. James's Gazette better left alone. Article is clearly by ——, and he anonymously or onymously is not worth powder and shot. I am not lazy, but I believe a little contempt *now*, i.e. for a month, is good medicine. If they follow up, why, we will have a good smash at them.

1891. *February.* Owing to an accident to Ayrton, I have to give a Friday Evening lecture at the Royal Institution. I intend to give Hydrophobia and to show up Miss Cobbe and her lying crew, and publish the lecture in the XIX Century if Knowles will have it. In any case the statistics for it will come in most handy for our paper in August at the Hygienic Congress. Can you help me in this very sudden emergency to collect the figures? I can collect Pasteur's, but I must have London cases of rabies in dogs and hydrophobia in man—and England—at once, so as to construct a fine red diagram for the lantern, to show how muzzling

knocked the wind out of rabies and its apostle Miss Cobbe—Science *versus* Ignorance. *Dec.* 2. Nothing is simpler than the demolition of that blackguard ——. In the first place, are his quotations true ? If they are, come here at 5 o'clock, and we will concoct the answer.

The defeat of the meeting of the Dog Owners' Protection Association, November 25, 1889, was arranged and led by Horsley. He issued a notice, four days before, asking medical men and students to come and support a wrecking amendment ; it was moved by him, seconded by Mr. Sidney Turner, and carried by ' an overwhelming majority ' ; and the meeting came to an end. After this defeat, the anti-muzzling movement gradually died out. Unhappily, in 1892, the Muzzling Order was relaxed.

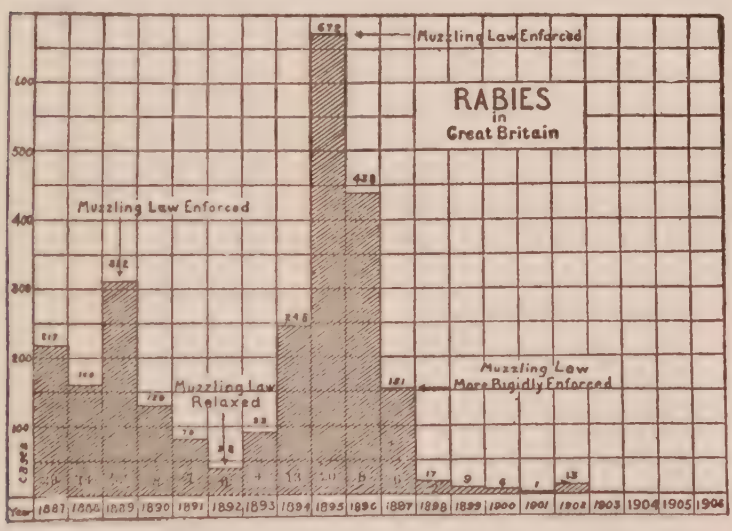


DIAGRAM SHOWING THE INFLUENCE OF MUZZLING OVER RABIES.

From Rosenau. Published by permission of Messrs. Appleton.

The enforcement of the Muzzling Order, and of quarantine of imported dogs, not as a half-hearted precaution in this or that district, but as a national method of stamping out rabies everywhere, was an uphill business : but Mr. Walter Long held on with it, till we were free, at last, from the

disease, and from the fear of the disease.[1] Many years later, Mr. Long said of his work :

> When we embarked upon that enterprise, I venture to say that we should never have dared to do it—and I may say, further, that our attempt would not have been justified—had it not been for the knowledge that those experts who advised us, and upon whom we depended, possessed knowledge which not only proved itself to be incontrovertible, but which surmounted every difficulty that was offered to us during those five anxious years.

That is to say, it was Pasteur, and men over here able to judge of his work, who strengthened the hands of our Government to make an end of rabies and hydrophobia. In 1918, after our country had been for many years absolutely free from the disease, there was an outbreak of rabies in Plymouth and Devonport : the disease, somehow, had been imported. Strict precautions were taken : persons bitten received the protective treatment, and no case of hydrophobia has been reported. It is to be noted that the number of patients treated at the Pasteur Institute in Paris greatly increased during the War. The utmost vigilance will be needed to prevent the importation of infected dogs into our country.

Lady Horsley writes :

> The Dog Owners' Meeting was really a very amusing one—the crowded hall, the rapidity with which the attacking force were turned into a disconcerted rabble by the weight of the knowledge opposed to them, the extreme discomfiture of the Chairman, the hilarity of the medical students, and the cheerful persistence with which they heckled one of the speakers with ' How about that broken leg ? '—and Victor's face flashing with the joy of killing a lie—all make up a picture that I shall never forget. The real reason, of course, why Victor was so exceedingly keen about this question was because, having seen cases of hydrophobia in private practice, the sufferings of the patients filled him with the most intense

[1] See the Report of the Departmental Committee appointed by the Board of Agriculture to inquire into and report upon the working of the laws relating to dogs. Appointed April 1896 : Chairman, Mr. Charles A. Whitmore, M.P. Horsley gave evidence on July 17. The Report was published 1897.

pity. I think I am right in saying that of all diseases he thought hydrophobia the most awful. He was called down from London to see a case where a man, rich and with a well-fed and well-kept dog, had been bitten by it and had not gone to Pasteur, and by the time Victor arrived was in the final stage of the disease: and he was absolutely horrified with his sufferings.

NOTE

It is to be remembered against the anti-vivisectionists, that they not only reviled the work of the Pasteur Institute in Paris, but also, about 1894, tried to prevent the founding of the Kasauli Institute, the first Pasteur Institute for India. See Sir Leonard Rogers's evidence before the Royal Commission, May 15, 1907.

The spread of rabies, which began in 1918, has carried the disease into many parts of England. At the present time (April 30, 1919), the number of cases confirmed by the Board of Agriculture is 162. Proper 'services de la rage' have been established in London and in Plymouth. Happily, no case of hydrophobia has been reported.

There is an admirable account of the relations between the Pasteur Institute and our country, and of the enforcement of the Muzzling Order, in Sir Rickman Godlee's Life of Lord Lister, ch. xxix., 'The Lister Institute.'

The Society for the Prevention of Hydrophobia has lately been re-constituted, with Mr. Sidney Turner as Chairman of Committee.

VII

The Localisation of Function in the Brain

It was natural that Horsley should take the brain as his chief subject of study. The choice was decided for him; it was more compulsion than choice; it was thrust on him at lectures and in talk and in reading, and by every 'head-case' in the Hospital. All that was intellectual in him urged him to care more for the seat of the intellect than for any other organ in the body: it offered him problems and opportunities and rewards that nothing else could offer: it was the kingdom intended for him, and he for it. Not that he started to find his kingdom with any philosophical or psychological theories to impede him on the journey. He took the only right road and kept it, the way of clinical observation, pathology, and experimental physiology; and was in very good company.

In Richet's great Dictionary of Physiology, there is a long review, by Soury, of theories of the brain: beginning with Alcmæon of Crotona, who lived, as John Hunter says of Sennertus, 'the Lord knows how long ago.' Horsley would not be troubling himself over the theory of Descartes, that the pineal body is 'the seat of the soul,' nor over Kant's philosophical answer to Descartes, that the *ego* is not in space, and therefore is not to be localised anywhere: but he was fond of quoting from Soury the case of Pausanias the sophist, one of Galen's patients.[1] But what concerns us here is Soury's reminder, that the philosophers, physi-

[1] 'I am fond of referring to Galen,' he says in an address in 1904, 'because it is perfectly astonishing what an amount of accurate neurological knowledge Galen acquired by his experiments on the lower animals and demonstrated to his pupils in Rome.' Again, at the Festival Dinner of the Queen Square Hospital in 1907, he spoke of Galen; and drew from Mr. Danvers Power this charming compliment—'If Galen was physician to the gladiators in his day, we may say of Sir Victor Horsley in our day that he is gladiator to the physicians.'

ologists, psychologists, and even the phrenologists, all were up against problems of localisation : they were all attempting to define the site of consciousness :

> The scientific theory of cerebral localisation came into the world late enough : but the principle of the localisation of functions, psychical, intellectual, and moral, is almost as old as human thought.

By the time of Galen, 131-200 A.D., it was agreed that neither the heart, nor any other region of the body except the brain alone, was the seat of sensation, voluntary movement, and intelligence. ' Where the origin of the nerves is,' said Galen, ' there is the command of the soul.'

Then came ages of thought, but not of experiment, nor of unfettered thought. The world had to wait to the nineteenth century for the discovery of cerebral localisation : and neither philosophy nor psychology had anything to do with it. They who make discoveries in the kingdom of the natural sciences enter it, as General Allenby entered Jerusalem, on foot. The date of the first precise and followed-up proof of cerebral localisation is 1861. It was on April 14, 1861, that Broca, at a meeting of the Anthropological Society of Paris, showed the brain of a man who for twenty-one years had suffered loss of the faculty of speaking. He could hear, read, understand, and make himself understood by gestures ; his tongue and his larynx were not at fault ; but the most that he could utter was a meaningless sound of one syllable, *tan, tan* : and once, in a moment of anger, he swore. Year after year, this one disability, the loss of speaking, was all that was the matter with him. Later, there came signs of progressive failure of the brain. The *post-mortem* examination showed softening of the left frontal lobe : and this softening had begun in the third left frontal convolution, and had extended, very slowly, into the adjoining convolutions. Soury puts it thus :

> Broca saw clearly what Bouillaud and Aubertin had foreseen, that the demonstrated reality of this first localisation upheld the general principle of the localisation of the functions of the brain : that is, of the brain considered henceforth not as one organ with one function all of one sort,

> but as a group or groups of organs, diverse in nature and distinct in position, and thus answering to the diversity and the independence of the psychical functions.

This case, and others which Broca collected and put on record, mark the beginning of the new learning: but he must not be exalted too high above the men of his time, as if he alone had thought of the departmental working of the brain.

From 1861 to 1870, the new learning was advanced by clinical and pathological study, not by experimental physiology. Then, in 1870, came the work of Fritsch and Hitzig: it had not a wide range: it was soon surpassed by Ferrier's work: but it was of the utmost importance. Men had known, for ages, that the surface of the brain is insensitive: that it does not 'feel pain' as the surface of the body 'feels pain': this fact was as old as Aristotle. Age after age, the insensitiveness of the surface of the brain had prevented men from understanding the character of the surface of the brain. Even when they had thorough knowledge of its microscopic structure, and of all that had been made out by science and practice, they were still kept back by the apparent impossibility of putting a direct question to it, and getting a direct answer from it. That is to say, they were waiting for the discovery that the surface of the brain answers to the electric current. Broca's case had been a demonstration, given by Nature, of the character of one small area: Nature had asked the third frontal convolution, 'What are you for?'—and it had answered that it was for the faculty of speaking. Fritsch and Hitzig put the question, by means of the electric current, to other areas: and, from some of them, they obtained an answer. It took the form of movement of this or that definite group of muscles on the opposite side of the body. (Opposite, because of the crossing over of nerve-fibres at the base of the brain: whereby the left cerebral hemisphere is related to the right side of the body, and the right cerebral hemisphere to the left side of the body.) They used the galvanic current, of a minimal strength, just enough to cause a movement: and they were able to map out, as it were on a chart,

certain 'centres' for movements of the neck, the limbs, and the face.

They published this discovery in April 1870. (Ueber die elektrische Erregbarkeit des Grosshirns. In Reichert's and Du Bois Reymond's Archiv, 1870, p. 300.) They mark, on their diagram, five centres, and no more. By 1875, their

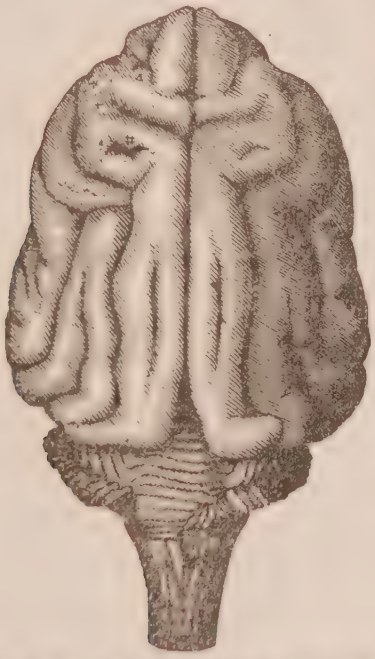


DIAGRAM OF THE DOG'S BRAIN, SHOWING THE FIVE 'MOTOR CENTRES' LOCALISED BY FRITSCH AND HITZIG, 1870.

From their paper in Reichert's Archiv.

chart was already out of date: still, there it is, the first of its kind that ever was put in the hands of men.

Ferrier, in 1873-75, using not the galvanic but the faradic current at minimal strength, localised many more centres, and so precisely charted them that Fritsch and Hitzig were left far behind. He also localised some centres not of movements, but of certain acts of perception. Thus our country, in this field of experimental physiology, was soon ahead of Germany: as it was shown at the time of the International

Medical Congress in London, in 1881, when Ferrier and Yeo, at a crowded meeting of physiologists, confuted Goltz. And in clinical and pathological knowledge, which ultimately are as inseparable from experimental physiology as the convexity from the concavity of a curve, no country was ahead of ours, no, nor equal to ours. As Horsley, long afterwards, said of Hughlings Jackson; that he was 'the father of neurology, in this country, and everywhere else.'

This account of the arrival of the new learning may be useful to non-medical readers; for whom alone it is intended. After 1875, the output of work, in this and other countries, became so great that no man can describe it. The main lines of it are clear enough. One was the application of the facts of cerebral localisation to the study of injuries and diseases of the brain; with special reference to cases of 'Jacksonian epilepsy.' Another was the advancement of the surgery of the brain. Another was the incessant criticising and interpreting and adjusting of all new facts and theories as they came to hand. Another was the modern study of the deeper parts of the brain, and of the spinal cord. Along these and other lines, all of them crossing and recrossing, legions of men were at work. Thus, Horsley and his contemporaries came into the very thick of it.

In January, 1884, he began work with Professor Schäfer, who in 1883 had been appointed Professor of Physiology at University College; who writes:

> I had planned, amongst other work, the carrying out of a series of researches upon the brain of the monkey, with the view of testing and, if possible, extending the work of Ferrier and Yeo. I invited Victor Horsley, who had just completed his surgical training, to co-operate with me: rightly considering that his skill and experience in the methods of antiseptic surgery, in which I had not myself been trained, would be of great value in the investigation. We began our joint work in January 1884, and it was continued until July 1886, a period of two and a half years. For a considerable portion of the time, Horsley was carrying on similar work at the Brown Institution, in conjunction with Dr. Beevor. Their observations, although in some measure

coinciding with ours, were published quite independently, and indeed happened to appear first: the publication of our results was delayed by the re-drawing of elaborate illustrations. Our complete results were published in the Phil. Trans. for 1887: but this paper had been preceded by one or two preliminary communications elsewhere.

In the Library of the Royal Society of Medicine, there are two volumes, presented by Horsley, of collected papers from the Transactions of the Royal Society. These give us the work which he did, between 1884 and 1891, with Schäfer, Beevor, Semon, Spencer, and Gotch: eight papers, 525 pages in all, with thirty-three pages of plates. The literary style of the papers is not above criticism; they were written in collaboration, but it is probable that Horsley did most of the writing; and he had not the knack of putting abstruse arguments in easy sentences. He could write with admirable clearness on 'practical' subjects: but when he is thinking his way through a labyrinth of physiological evidences, his style suffers.

The eight papers are as follows:

1. A Record of Experiments upon the Functions of the Cerebral Cortex. By Victor Horsley and E. A. Schäfer. Read February 17, 1887.

2. A Minute Analysis (Experimental) of the Various Movements produced by stimulating in the Monkey different Regions of the Cortical Centre for the Upper Limb, as defined by Professor Ferrier. By Charles E. Beevor and Victor Horsley. Read June 10, 1886.

3. A further Minute Analysis by Electric Stimulation of the so-called Motor Region of the Cortex Cerebri in the Monkey (*Macacus sinicus*). By Charles E. Beevor and Victor Horsley. Abstract read, June 16, 1887.

4. An Experimental Investigation into the Arrangement of the Excitable Fibres of the Internal Capsule of the Bonnet Monkey (*Macacus sinicus*). By Charles E. Beevor and Victor Horsley. Read December 12, 1889.

5. A Record of the Results obtained by Electrical Excitation of the so-called Motor Cortex and Internal Capsule in an Orang-Outang (*Simia satyrus*). By Charles E. Beevor and Victor Horsley. Read June 12, 1890.

6. An Experimental Investigation of the Central Motor Innervation of the Larynx. By Felix Semon and Victor Horsley. Read June 19, 1890.

7. On the Changes produced in the Circulation and Respira-

tion by Increase of the Intra-cranial Pressure or Tension. By Walter Spencer and Victor Horsley. Read June 19, 1890.

8. The Croonian Lecture. On the Mammalian Nervous System, its Functions, and their Localisation determined by an Electrical Method. By Francis Gotch and Victor Horsley. Read February 26, 1891.

That is the order of his experimental study of cerebral localisation, from 1884 to 1891. First, the more general work with Schäfer. Then, the more special work with Beevor : the study of localisation in one species of monkey ; the study of localisation not only at the level of the surface of the brain, but at the level of the nerve-fibres passing from the surface of the brain toward the spinal cord ; and the single study of the brain of one anthropoid ape. Then, the special work with Semon : the study of the localisation of centres for the movements of the larynx.

The work with Spencer, and the work for the Croonian Lecture with Gotch, were not directly concerned with the study of cerebral localisation : they are noted in later chapters.

I

THE FUNCTIONS OF THE CEREBRAL CORTEX. (WITH SCHÄFER)

The method in these experiments was either stimulation with the faradic current at minimal strength, or ablation, *i.e.* removal of the little area of 'grey matter' controlling this or that group of muscles :

> All these experiments have been performed with the strictest antiseptic precautions and under carbolic spray, and the wound, after being closely stitched, has been dressed with antiseptic gauze, and this again overlaid and rendered firmly adherent to the scalp by a layer of thick collodion. . . . All the operations have been performed under anæsthetics, either chloroform or ether being used, almost always supplemented by the hypodermic injection of morphia (as much as from one half to one grain of the acetate having usually been given). This has the great advantage of causing the animal to remain perfectly quiet for several hours after the operation, and of permitting it, during the slow process of recovery from the effects of the morphia, to become accus-

tomed to the collodion dressing, which would otherwise be irksome, and this would lead to attempts at removal. The morphia has also appeared to us to diminish the hæmorrhage from the cut cerebral surface. This is in any case easily stayed by the application of gentle pressure.

This description of the method of operating may stand for all Horsley's experiments on the nervous system : except that he gave up the use of the spray.

The main results of these researches with Schäfer may be stated, in outline, as follows :

1. *The Prefrontal Region.*—'The results of our experiments upon the anterior part of the frontal lobes have been completely negative so far as electrical stimulation or the permanent result of ablation are concerned. In this we are in agreement with Ferrier and Yeo, but in contradiction of the results obtained by H. Munk.' They altogether reject Munk's statement that the prefrontal convolutions contain any 'motor centres' : they are of opinion that he used a current of such strength that it was diffused beyond the points at which it was applied, and that he was not sufficiently careful over the enforcement of the antiseptic method. This clearing of the ground was a great service to physiology.

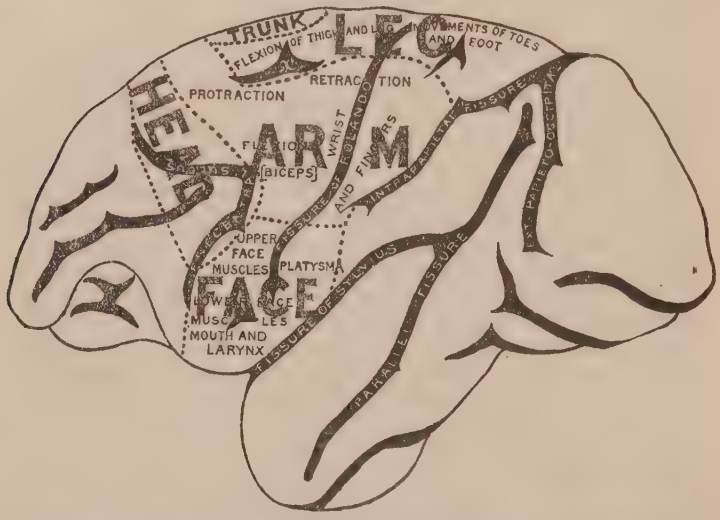
2. *The Motor Region of the Cortex.*—Many physiologists since 1870 had been studying the 'external' convolutions, *i.e.* those on the convexity of the brain, on the surface immediately under the skull. None had studied with equal attention the 'mesial' convolutions, *i.e.* those which form the walls of the deep narrow cleft between the two hemispheres of the brain. This cleft, the longitudinal fissure, runs the length of the brain, in the middle line of the head : and the mesial surfaces of the two hemispheres face each other like very high houses on either side of a very narrow street. Thus, the mesial surface of either hemisphere is less easy of access than the external surface, and was still waiting to be studied by the experimental method.

By their experiments on the external surface, Schäfer and Horsley not only confirmed Ferrier's results, but added to them, filling in the picture, here and there, with a finer analysis of this or that group of movements :

Our experiments show that the motor portion of the cerebral cortex may be mapped out into a certain number of main areas, each of which is chiefly concerned with the

movements of a particular part or limb, and in some of which certain centres concerned with more specialised movements may be worked out.

They describe the ' overlapping ' of adjacent tracts—how every centre and area overlaps to a greater or less extent the surrounding areas. That is to say, there is a ' primary movement,' of this or that muscle or group of muscles on the opposite side of the body, which is represented, above all other movements, at one particular point of the cortex :



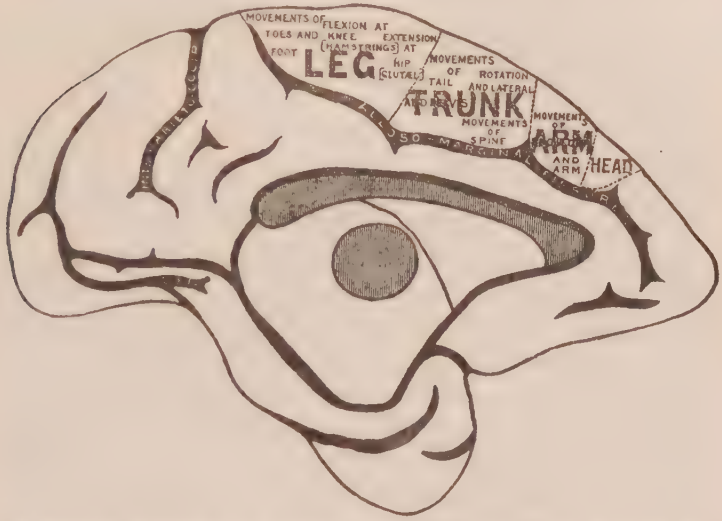
1. MOTOR REGION OF CEREBRAL CORTEX (EXTERNAL SURFACE).

From the paper by Horsley and Schäfer in the Philosophical Transactions of the Royal Society. (Paper read February 17, 1887.)

and there are ' secondary movements,' which likewise are evoked by stimulation at this particular point, but are more strongly represented at some adjacent point. Thus, the same movement has its ' primary representation ' at that point where it is most strongly represented, and its ' secondary representation ' at one or more adjacent points.

By their experiments on the mesial surface, they proved that the motor region extends down over the greater part of the mesial surface : the whole of the marginal convolution (gyrus marginalis) is motor. By these experiments,

they added, to our map of the external motor region, a map of the mesial motor region.



2. MOTOR REGION OF CEREBRAL CORTEX (MESIAL SURFACE).

From the same paper.

3. *The Occipital Lobes.*—' Our experiments upon the occipital region, though few in number, seem to link together the conclusions arrived at by Munk, and by Ferrier and Yeo, as the result of their experiments. They indicate that the occipital lobes and angular gyri are concerned with visual perceptions, in such a manner that each occipital region is connected with the corresponding lateral half of each retina, and that a part only of the cortex of the region in question is able to take on in great measure—how completely, cannot be determined in animals—the functions of the whole. This is in conformity also with the results obtained by Luciani.'

4. *The Temporo-Sphenoidal Lobe and the Limbic Lobe.*—Their experiments on the temporo-sphenoidal lobe gave no positive results: no distinct evidence was obtained either for or against Ferrier's conclusion that the superior temporo-sphenoidal gyrus is associated with auditory consciousness. (The ' limbic lobe ' is Broca's name for the gyrus fornicatus and the gyrus hippocampi, which form one continuous structure: the gyrus fornicatus, shown in diagram 2, is the convolution below the gyrus marginalis, separated from it by the calloso-marginal fissure.) Their experiments on the

limbic lobe led them to conclude that this portion of the cortex is largely, if not exclusively, concerned with the appreciation of sensations of pain and of touch.

In later years, Horsley doubted the validity of these experiments on the limbic lobe.

II

THE CORTICAL CENTRE, IN THE MONKEY, FOR THE UPPER LIMB. (WITH BEEVOR)

Beevor and Horsley begin this paper with a study of the comparative anatomy of the upper-limb area, in the monkey and in man. They identify a small fissure in the monkey's brain, which Schäfer had provisionally called sulcus *x*, with the superior frontal sulcus in the human brain.

They planned out the area into subdivisions of about 4 mm. square, and used electrodes 2 mm. apart. The current was of minimal strength, just enough to give a prickling sensation on the tongue :

> This very weak secondary current was always employed, so as to obviate the fallacy of diffusion. That this object was attained was obvious, for, if a certain movement was always obtained at one place, shifting the position of the electrodes for even one millimetre was sufficient to produce a totally different result.

Working thus in millimetres, they found ' that the ascending parietal convolution has less claim than the ascending frontal to be considered as an area of extensive representation of movement.'

They formulate two axioms, based on these experiments :

> 1. Viewing as a whole the ' motor area ' of the cerebral cortex for the upper limb, as defined by Professor Ferrier, we find that the regions for the action of the larger joints are situated at the upper part of that area, close to the middle line, while those for the smaller and more differentiated movements lie peripherally at the lower part of the area.
>
> 2. As a general rule, *extension* of all the joints, particularly of the wrist and elbow, is the most characteristic movement of the upper part of Ferrier's arm centre ; while *flexion* is equally characteristic of the movements obtained by

> stimulating the lower part. Finally, between these two regions there is a small portion where alternate flexion and extension predominate, a condition to which we have given the name of *confusion*.

This confusion-theory failed to gain acceptance among physiologists. Doubtless, the condition which suggested it to Beevor and Horsley was brought about by some slight diffusion of the current: they did not completely 'obviate the fallacy of diffusion.'

After a very minute analysis of these movements, they take up their first axiom, in its relation to Hughlings Jackson's work; especially, his work on those cases of epilepsy in which the convulsive movements begin always in one and the same group of muscles, and spread by a definite and orderly 'march' or progress to other groups. Against his will, the name of 'Jacksonian epilepsy' had been given to these cases. He resented this phrase: it asserted more than it could prove: he preferred the phrase, 'the Jacksonian attack.'

> It seemed to us highly important to note the order of movement of the different segments of the limb—in fact, the 'march,' as it has been termed by Dr. Hughlings Jackson, of the nerve discharge—since we consider that a complete series of observations of this kind would enable us to construct a definite scheme which would show at a glance where certain primary movements are really centralised. By this we mean that we applied the electrodes to the cortex just long enough to evoke movement in one joint only, and then noted which moved first, and in what direction. This first movement we considered to be the primary or fundamental movement in the given portion of cortex stimulated.

They were able, by separate study of each square on their plan, to ascertain which of the joints had 'priority of movement' in each cerebral centre or group of centres. They give a table of their results, and comment on it:

> As is shown in this table, the sequence in the movement of the parts is fundamentally similar to that which had been arrived at from clinical observation by Dr. Hughlings Jackson in cases of epilepsy. . . . The first and most fundamental fact concerning the successive invasion of the various joints

has already been determined by Dr. Hughlings Jackson, *viz.* that when a movement emanating from the cortex, *e.g.* of the upper limb, begins in the shoulder, it proceeds downward involving successively the elbow, wrist, and fingers; and inversely, when it begins in the thumb and fingers, the 'march' proceeds up the limb. . . . The observation of these movements as produced in our experiments has enabled us to form certain definite generalisations concerning the order of their march.

III

FURTHER MINUTE ANALYSIS OF THE MOTOR REGION. (WITH BEEVOR)

In this paper they link up the facts of experimental physiology closer to the facts of daily experience: they write with more assurance of the identity of these experimental movements with the complex purposeful movements of ordinary life.

For perfect accuracy of localisation, this series of experiments, twenty-three in all, was made on one species of monkeys. In each case, the animal was killed before recovering from the anæsthetic. The usual method was followed: but they now studied results not only at the centre of each square on the plan, but also at midway points. The total amount of observations was very large. For example, they distinguish ten forms of movement of the head and eyes, and define the number and the position of the centres of primary and secondary representation of each of them. They even speak of tertiary and quaternary representation.

1. *Movements of the Head and Eyes.*—They call attention to the great extent of the area over which the movement of turning the head and eyes sideways is represented. 'As a primary movement, its importance entitles it to first consideration. Of the 104 occasions on which this movement was observed to occur, in 100 instances it was primary. This is, no doubt, a demonstration of the necessity that this primitive movement should precede all others.' That is to say, the turning sideways of the head and eyes, being essential to the perception of food, the avoidance of danger, and so forth, is ensured by a very wide representation. Beevor and Horsley also determined, more or less exactly, the 'march' of the movements of the head and eyes; and

found that the movements of the head and the movements of the eyes are not invariably synchronous.

2. *Movements of the Lower Limb.*—The movements of the extreme joints, the foot and the hip, have a more important primary representation than the movements of the intermediate joints, the knee and the ankle.

The representation of the lower-limb movements is much less highly differentiated than the representation of the upper-limb movements. That is to say, the ordinary experience of daily life—that whereas the upper limb performs movements of great complexity and speciality of purpose, the lower limb is engaged in actions which are far less specialised—is re-stated on the surface of our brains.

The movements of the *hallux* (great toe) are very widely represented over almost the whole of the lower-limb area: they also have a very wide primary representation. The maximum representation, *i.e.* the chief region of primary representation, is round the upper end of the fissure of Rolando.

The movements of *all toes* have their primary representation at the two extremities of the lower-limb area. From these two points, their representation gradually diminishes in intensity toward the focus of representation for the hallux. The movements of the *small toes* apart from the hallux are poorly represented. 'It is evident, from the general rarity of primary movement of the small toes, that it is of very inferior importance among the movements of the lower limb.'

The representation of the movements of the *ankle* is what might be expected from the relation of the ankle to the rest of the limb: it takes part in almost all the movements of the limb, but it takes a subordinate part. In such movements, for example, as walking, or turning round, or withdrawing the foot, it helps, but does not start, the action. Its representation is in accord with its importance. It has a very wide representation, but mostly secondary.

The movements of the *knee*, likewise, have that representation which might be expected from what we know of our own actions. We all are aware that the movements of the knee are mostly subordinate to the movements of the hip and the foot: for example, we flex the knee to relieve the strain of flexion of the hip. Accordingly, the primary representation of the movements of the knee is 'most insignificant.'

The movements of the *hip* have a far stronger representation. The focus of representation is in the lower anterior portion of the lower-limb area.

3. *Movements of the Upper Limb.*—As in the lower limb, so in the upper limb the movements of each segment have

that quantity and quality of representation to which the segment is entitled by its contribution to the ordinary purposes of daily life. Even the superiority of the upper limb, as an implement, over the lower limb, is written on the surface of the brain: the movements of the index-finger, and of the wrist, are more elaborately represented than the movements of the second toe, and of the ankle: and the representation of pronation of the hand—the turning of the palm downward—is especially strong, this movement being absolutely essential to the fine and accurate use of the thumb and index-finger. In the 'march' of the movements of the upper limb, also, the exceptional value of the index-finger shows itself.

4. *Miscellaneous Facts.*—Among the notes under this heading, one is of special interest. Beevor and Horsley offer, with some hesitation, a theory of the movements involved in the taking of food. The area for the turning sideways of the head and eyes is situated between 'the presumably higher psychical centres of the prefrontal region' and the upper-limb area. In the upper-limb area, the centres for advancing and extending the hand lie in front of the centres for withdrawing the hand and bringing the arm toward the trunk. This anatomical arrangement of the brain's surface would come into use over the act of taking food: the impulse would travel direct. First, the psychic sense of some edible object; then the directing of the gaze to it; then the reaching forward of the hand to it; lastly, the carrying of the hand to the mouth. They admit that these are 'necessarily speculative deductions': still, it is a sound theory: but it had to be modified: indeed, it was modified by the observations which they record in their next paper.

IV

THE ARRANGEMENT OF THE INTERNAL CAPSULE. (WITH BEEVOR)

This work seems to have been even more elaborate than the work already done. They had studied the surface of the brain: now, they studied its deeper structures. They set themselves to investigate the anatomical arrangement and physiological action of the nerve-fibres passing down from the surface of the brain toward the cord. They studied these fibres along that stretch of their course which is called the 'internal capsule.' This name is meaningless nowadays, when we only think of a capsule as a sort of envelope: but

it had a meaning in the days when anatomists talked Latin. *Capsa* is a paper-basket, such as the Romans used for holding a dozen or so of tall rolls of manuscript. *Capsula* is a little paper-basket. The sheaves of millions of fibres were likened to close-packed rolls of parchments standing side by side. They are often likened to the sticks of a fan: but we have to think not of one but of thousands of fans.

On these fibres, Beevor and Horsley made forty-five experiments. In each case, the animal was killed before recovering from the anæsthetic. They begin their paper with a review of the work done by others, and with a very minute description, thirteen pages long, of the anatomy of this part of the brain. Then they describe their method. They worked on a plan of sub-divisions of only 1 mm. square; and they studied the fibres not only at one level of their course, but at eight levels. That is to say, they studied not one, but eight, 'groups' of fibres. Each group, of course, has its own outline on transverse section, and its own position in relation to the ganglia at the base of the brain, just as each cross-section of the wood of a tree has its own veining. But the outline of the internal capsule, as a whole, is a narrow tract of white matter, bounded by the basal ganglia, and having two 'limbs,' anterior and posterior, at an obtuse angle to each other.

Their use of engine-ruled paper is to be noted: and their method of standardising the eight 'groups' of the fibres:

> Upon paper, on which fine lines were engraved by an engine with mathematical accuracy so as to cover the surface with squares of 1 mm. side, we drew by means of compasses the exact outline of the basal ganglia as exposed by the section. In this way we obtained at once the cut surface of the internal capsule correctly projected on paper divided into squares of 1 mm.; these squares we then numbered from the front of the anterior limb of the capsule to the posterior end of the lenticular nucleus. Finally we stimulated each of these bundles of fibres thus obtained of 1 square mm. area, and recorded the effect produced. The electrodes used were two fine platinum points, 1 mm. apart, so that the excitation should be exactly limited to each square excited. . . . After the experiment was completed, the

animal was killed by excess of chloroform, the hemisphere removed, washed in salt solution, and the surface photographed. Upon the photograph thus obtained, the numbers representing the different bundles of fibres (1 mm. square) were transferred by compasses from the plan originally drawn on the ruled paper. . . .

In plotting out the plan of the capsule during an experiment, we arranged it so that the more important posterios limb should be drawn parallel to one direction of the rowr of squares on the ruled paper ; consequently, as the anterior limb forms an obtuse angle with the posterior limb, the squares dividing it were necessarily échelonned. We therefore expressed each square, or bundle of fibres, by a fraction, the numerator of which denoted the distance that it was situated from the anterior end of the capsule, while the denominator gave the total length of the capsule in that particular section. In this wise, one fraction, or in other words the position of one bundle of fibres in one section, is strictly comparable with that in another section.

In order to bring all the fractions, thus obtained, together, and to find the average position of the representation of any given movement in each group, we converted all the fractions into decimals to two places. We took two places as adequately accurate, since any error beyond would only amount to $\frac{1}{1000}$th of the length of the capsule : and as this actually amounts, on the average, to not more than ·02 mm., it is a length far too small to be considered among the errors of the experimental method.

Working thus in fractions of millimetres, and studying the internal capsule at no less than eight levels, Beevor and Horsley were able to construct a very perfect scheme of it. Their paper is illustrated with many photographs and many tables of figures, and with 152 diagrams. The general results which they obtained—it is absurd, to give a 'summary' of work so minute—were as follows :

1. There is no evidence that any fibres descending from the cortex pass into the basal ganglia.

2. The anterior limb of the internal capsule is almost all of it composed of fibres coming from the prefrontal region. That part of the brain is not immediately concerned with motor impulses, and the fibres coming from it have no efferent motor function, and give no response to electrical stimulation.

3. That portion of the internal capsule which does respond to stimulation is composed of fibres coming from the fronto-parietal region.

4. The extremity of the posterior limb is composed of fibres coming from the temporal and occipital regions: these regions are not immediately concerned with motor impulses, and this portion of the capsule gives no response to stimulation.

5. The excitable fibres are arranged, antero-posteriorly, in the same order as the foci of representation in the excitable portion of the cortex.

6. Likewise, the arrangement, in the internal capsule, of the representation of the movements of each segment of a limb corresponds to the arrangement in the cortex.

7. Likewise, the character of each movement is represented in the internal capsule, as in the cortex.

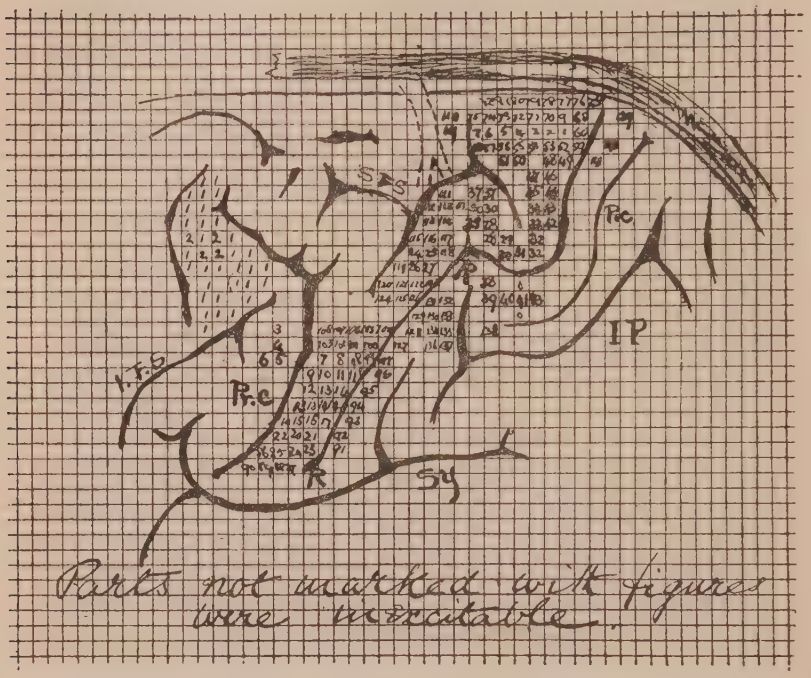
This last conclusion modified the importance of the cortex as a factor of purposive movements, and emphasised Hughlings Jackson's teaching, that all representation is re-representation; that our purposive movements are represented at many lower levels of our central nervous system, and that the cortex is nothing more than the highest level. As he said, 'I believe that the cerebrum represents all parts of the body; and that the cerebellum also represents all parts of the body.' And again, 'Of what substance can the organ of mind be composed, unless of processes representing movements and impressions? And how can the convolutions differ from the inferior centres, except as parts representing more intricate co-ordinations of impressions and movements in time and space than they do?'

V

THE BRAIN OF AN ORANG-OUTANG. (WITH BEEVOR)

In this one experiment on the cortex and the internal capsule of the brain of a young orang-outang, they found that the orang required more of the anæsthetic, both absolutely and relatively, than the bonnet monkeys: and that a rather stronger current was needed to evoke any movement. The drawing here produced was made by Horsley at the time of the experiment: it shows the numbering of the 2 mm. squares over the motor area. The paper is illustrated with thirty photographs of the orang's

brain : and begins with a review of the comparative anatomy of the cortex in the bonnet monkey, the orang, and man.



DRAWING MADE DURING EXPERIMENT ON THE MOTOR REGION OF THE CEREBRAL CORTEX OF AN ORANG-OUTANG.

From the paper by Beevor and Horsley in the Philosophical Transactions of the Royal Society. (Paper read June 12, 1890.)

1. *Movements of the Lower Part of the Face.*—Beevor and Horsley note the great mobility of the lips ; they describe seven distinct movements of the mouth and lips, and give the representation of each movement. In their preceding paper, they had discussed bilateral movements, *i.e.* those movements which are brought about, simultaneously and symmetrically, on both sides of the body, by the action of one side of the brain. They now divide the movements of the mouth and lips into those which are bilateral and those which are unilateral.

2. *Movements of the Tongue.*—They describe five distinct movements, ranging from complete protrusion to complete retraction. The representations of these movements were arranged on the cortex in a line from above downward.

3. *Movements of the Upper Limb.*—They call attention to the remarkable individual clearness, the high 'integration,' of the representation of each movement. In the brain of the bonnet monkey, they had very rarely obtained isolated primary movements: even a momentary application of the electrodes was apt to evoke secondary movements over and above the primary movement. In the brain of the orang, each centre was more able to keep itself to itself: they could easily obtain isolated primary movements.

4. *Movements of the Lower Limbs.*—'Probably in all the higher animals the representation of the lower limb is less integrated than that of the upper limb: but it was especially necessary to see what was the condition in an anthropoid like the orang, whose customary vertical posture places it in an intermediate position between the macaques and man.' In accord with this fact, they found, in the orang's brain, a very wide and highly differentiated representation of the movements of the hip. And they especially note that in the orang, extension of the hip and knee was produced much more often than flexion: whereas, in the macaque, flexion was produced much more often than extension.

The representations of the movements of the lower limb—hip, knee, ankle, hallux, and small toes—were arranged, on the cortex of the orang, in a line from below upward: but on the cortex of the macaque, in a line from before backward.

From these facts, Beevor and Horsley deduce a very ingenious theory, which they 'venture to suggest is not merely fanciful.' The habits of the two animals, they say, seem to agree with the arrangement of their lower-limb centres. The macaque saves itself in flight by climbing, for which purpose the first movement is, of necessity, flexion of the hip: and, in the macaque, the representation of this movement is situated at the most anterior point of the lower-limb area, just where it ought to be for the psychical order of events, *i.e.* first the directing of the gaze, then the initial movement of flight. The orang, for the initial movement of flight, rises on its lower limbs, extending the hip and knee: and, in the orang, extension of these joints is more strongly represented than flexion.

Finally, Beevor and Horsley come back to the extraordinarily high differentiation of the orang's brain. In the macaque, they say, the excitable area of the cortex is continuous: in the orang, it is traversed by intervening zones which are not excitable:

> It is well known that in the lower orders of animals the integration of representation becomes less perfect as we

descend in the scale—that, in fact, it is increasingly difficult to differentiate the areas for the limbs; while, on the contrary, in ascending the scale, we have shown in our previous communications that it is easy to differentiate between the areas of representation of even the segments of the limbs: and finally, when we now arrive at the orang, the segments are not only differentiated in representation, but the nature of that representation is that of single movements.

The existence of non-excitable lines or 'zones' is not now admitted by physiologists: the theory of the excitability of the post-central convolution, also, was to some extent corrected by the later work of Sherrington and others.[1] None the less, this study of the orang's brain—the first anthropoid brain thus studied either in this country or any other—was of great value.

VI

THE CENTRAL MOTOR INNERVATION OF THE LARYNX. (WITH SEMON)

There are two sets of small muscles for the movements of the vocal cords: those which bring the cords together, and those which draw the cords apart. These two sets of muscles are called the intrinsic muscles of the larynx, because they are part of its structure: they lie just under the mucous membrane. The large outside muscles, the extrinsic muscles, which draw the larynx up and down *en masse*, have nothing to do with the movements of the vocal cords.

The bringing together of the cords is called *adduction*: the drawing apart of the cords is called *abduction*. To speak, we use our adductor muscles; to take a deep breath,

[1] In 1909, in his Linacre Lecture, Horsley spoke as follows of this question of the excitability of the post-central convolution: 'The first experiment in an anthropoid was a solitary observation by Dr. Beevor and myself. We only obtained evidence of excitability of the post-central gyrus at two points. This single experiment, confirmed in all other essential particulars, has been superseded by the extensive researches of Sherrington and Grünbaum, who were enabled to make a great many experiments on the orang, chimpanzee, and even the gorilla. They found that the gyrus post-centralis in the anthropoid was inexcitable to a stimulus which evoked a response from the gyrus pre-centralis; but "facilitated" elicitation of movement from the gyrus pre-centralis.'

we use our abductor muscles. In quiet breathing, the cords are held about halfway between adduction and full abduction.

Semon, in 1881, in the Archives of Laryngology, laid down a rule so important that we may call it Semon's law. In cases of organic disease involving the motor nerves of the larynx, the abductor muscles fail before the adductors: in cases of functional disease, the adductors fail before the abductors. A patient with organic disease involving these nerves has difficulty in drawing the cords far apart, while he is still able to bring them together: a patient with 'hysterical aphonia' has difficulty in bringing them together, but none in drawing them apart. On this fact, Semon and Horsley founded their study of the cerebral centres for the control of respiration and phonation. Three initial difficulties had to be reckoned with:

1. They found differences, in the localisation of the laryngeal centres, between different species of animals.
2. They found differences between animals of the same species but of different ages.
3. Most unexpected of all, they found that the anæsthetic, ether, in very large doses, had a direct local influence of its own on the laryngeal muscles.[1]

They begin their paper with a review of the work done by others, especially by Ferrier, who comes first of all: it was he who discovered the cortical centre for adduction. The results obtained by Semon and Horsley must be divided according to the level at which they were observed, and the species of the animal.

1. *The cortex.*—In the *monkey*, they exactly defined the centre for adduction, at the lower end of the ascending frontal convolution. Outside this focus, there was an area

[1] An American laryngologist, Dr. Hooper, had called attention to this purely local action of ether-vapour. Semon and Horsley studied it thoroughly, and read a paper on it at the Annual Meeting in 1886 of the British Medical Association. They argued, from this selective action of ether, that there must be a physical difference between the two groups of muscles: and they confirmed this argument by a very simple experiment. They removed the larynx from an animal immediately after death, and exposed the muscles by rapid dissection, and found that the abductors ceased to respond to the faradic current sooner than the adductors: that is to say, the abductors died before the adductors.

where adduction was less strongly represented and was associated with movements of the pharynx. The adduction was always bilateral. They found no cortical centre for abduction. In the *dog* (adult) they obtained bilateral adduction, usually associated with movements of the pharynx. They found no centre for abduction. By stimulation of points adjacent to the centre for adduction, they were able to quicken the rate and increase the range of the ordinary laryngeal movements of respiration. In the *cat*, they found a remarkable difference from the dog. Abduction was well represented. In the *rabbit*, they found no focal area either for adduction or for abduction. Such movements as did occur were usually adduction, and were always associated with movements of the pharynx.

2. *The Internal Capsule.*—The arrangement of the excitable fibres of the internal capsule, from before backward, was as follows: Acceleration of the respiratory movements: abduction: increased range of the respiratory movements: adduction. The relative position of these four groups of fibres was ' constant and strictly homologous in the different species of animals.'

3. *The Medulla.*—These experiments were on the dog or the cat, not on the monkey. They proved the existence of small but well-defined areas, on the floor of the fourth ventricle, for adduction (unilateral or bilateral) and for abduction (bilateral).

In early animal life, efficiency of respiration is more important than efficiency of phonation: that is to say, abduction is more important than adduction. In accord with this fact, Semon and Horsley found that abduction, in all young animals, had a much stronger cortical representation than adduction. Thus, the central motor innervation of the larynx — as Semon had suggested at the International Medical Congress in Copenhagen in 1884— is adjusted not only for phonation but also for respiration; and adapts itself, in each species of animal, to the change from early life to adult life.

It is more than a quarter of a century, since the last of these six papers was published. They were pioneer work: they have been modified or corrected at this or that point, since 1890: none the less, they are a very memorable achievement in research, a series of studies such as few men could have planned and put through. And the wonder

is, that Horsley yet made time for so much else—for all his work on myxœdema, and on rabies, and in Hospital: and already, in 1886, at Queen Square, was beginning to use in surgery the facts and the methods which he had acquired from experimental physiology, and to advance the surgical treatment of the brain and the spinal cord.

NOTE

Dr. A. Salusbury MacNalty, who can speak with authority of this aspect of Horsley's work, has kindly revised and corrected this chapter.

VIII

From 1885 to 1887

In 1884, the Brown Institution had given him what he most needed for the pursuit of experimental physiology and pathology: he was not made for solitary work, nor for the teaching of elementary facts to a class of students: he was at his best when he was working with men of his own age and standing in science. In 1885, he became an Assistant-Surgeon to University College Hospital. In 1886, he became Surgeon to the National Hospital for the Paralysed and Epileptic, Queen Square; and Professor of Pathology at University College. The advantages of these appointments must be reckoned not by addition but by multiplication: each of them heightened the value of the others.

He was an Assistant-Surgeon to University College Hospital from 1885 to 1893: a 'Full Surgeon' from 1893 to 1900: and a 'Surgeon in charge of Hospital Beds' from 1900 to 1906: he then retired, and was made a Consulting Surgeon. Thus, he was on the visiting staff for twenty-one years: but it was only for the last six years that he had wards of his own. He began work in the old building: it stood where now is the grand new building, the gift of Sir Blundell Maple. Horsley was on a staff which was rightly called 'brilliant': one thought of University College Hospital as one thought of Balliol among the Oxford Colleges. But there are no great events in this part of his life's work: it might almost be regarded as uneventful: he was doing what other men were doing. Only, it helped to make him what he was: as he said once, half-jest, half-earnest, to a friend who apologised for consulting him over a trivial accident, 'I take all human infirmity for my province.' He never lost hold, in special surgery, of general surgery.

With his appointment to University College Hospital, and with the name that he was winning for himself, it was time that he should be in the consultants' quarter of London. The plan for a house in Grosvenor Street fell through : and in 1885 he moved from Gower Street to 80 Park Street, Grosvenor Square.

On May 12, 1885, at a meeting of the Royal Medical and Chirurgical Society, he took part in the discussion of a paper, by Hughes Bennett and Godlee, on a case of removal of a tumour from the brain. The date of this operation, the first of its kind either in this country or, so far as we know, in any other, is November 25, 1884. Horsley spoke of what he and Schäfer had learned from their experiments on monkeys : especially, of the use of morphia *plus* the anæsthetic, the use of a dry permanent dressing, and the disuse of the galvano-cautery.

There is a reference to these experiments, in a letter to Schäfer, June 10 :

> Can we get the stimulation experiments supplemented and published as soon as possible ? I shall be quite ready to do as much as you like after this week. What are your arrangements as to holidays, *etc.* ? Fact is, I have been working at the same thing in choreic dogs, and I don't find much difference so far. Then also our localisation of motor centres is supported by clinical evidence much more strongly than Ferrier's, and I think we ought to publish it, although I am extremely sorry the two plans do not coincide exactly.

In September, he published notes of a case in University College Hospital, of septic peritonitis, with recovery after operation : this was his first contribution to the literature of general surgery.

1886 (*æt.* 29)

On January 14, the Neurological Society of London was founded, at a meeting at Dr. de Watteville's house. Hughlings Jackson was its first President : Horsley was one of the original members. At a meeting of the Society on May 26, in the physiological laboratory of University College, Schäfer and Horsley opened a discussion, ' On the

sensory and motor localisations.' At a meeting on December 16, Bastian read a paper, 'On the muscular sense, its nature, and cortical localisation.' Horsley was one of the many speakers in the discussion. The paper and discussion, which occupy, in published form, no less than 137 pages of Brain, April 1887, were concerned with the question, What is the true nature of the cortical motor centres?[1] Bastian gave them the ill-sounding name of kinæsthetic, *i.e.* motor-sensory. Horsley did not admire this word: he rightly preferred his own phrase, 'the so-called motor centres.' He argued from the microscopic structure of the cortex; it was a line of argument which in 1886 had hardly been attempted: he advanced a theory, that the larger nerve-cells, the 'fourth layer' of the cortex, probably were motor; and the smaller nerve-cells, the more superficial layers, probably were sensory.

The paper and discussion wasted some of their force in talk about consciousness. Horsley was on his guard against all such talk. 'It is not for me,' he said, 'to enter to-night into questions of much deeper import, questions of philosophic thought.' Bastian had said that consciousness is 'of the nature of an epiphenomenon.' Horsley would not care for that sort of saying: it never was of any use to offer him a stone for bread.

On February 9, 1886, he was appointed Surgeon to the National Hospital for the Paralysed and Epileptic, Queen Square. It is not the only Hospital of its kind in London: but it was 'the oldest, the largest, the richest, and the best': it was known far and wide for its work and its teaching. But they who now are students, or are just starting in practice, can hardly realise all that it stood for, in the years when the

[1] There was general agreement, that they are not only a departure-platform for impulses going to the muscles, but also an arrival-platform for impressions coming from the muscles and from the surface of the body. The movements of walking, for example, are the ultimate result of certain experiences of touch and position and weight and equilibrium: they are decided by the 'feel' of our muscles and our joints; by the 'consciousness' that we have our feet on the ground; and by previous experiences of these impressions, stored up in us ever since we began to walk. The arrival-platform for all these factors of walking must be continuous with the departure-platform for the act of walking: there must be one terminus, under one roof.

new learning was new. We who were students about 1880 regarded it with downright reverence, as a place where men thoroughly understood the nervous system. All other systems, and their diseases, we thought that we ourselves understood: if not we, the physicians of our several Hospitals understood them: but with the nervous system it was otherwise. The diseases of that system were not calculable and explicable, like fevers, and diseases of children: nor were they a fair subject for an examination paper: the place for them was Queen Square.

His operating-theatre was simple enough: it was a room which was intended for, and is now, the day-room of Margaret Gibbins ward. The Hospital's first operating-theatre, which now is the lecture-theatre, was opened in 1891. The present operating-theatre was opened in 1904.

Before Horsley, the appointment had been held by Mr. William Adams, a kindly, skilful, rather old-fashioned surgeon, one of the foremost representatives of orthopædic surgery. He did all that could be done, by the straightening of bones, the division of tendons, the adjustment of supports, and so forth, to improve the usefulness of deformed, contracted, or paralysed limbs. Surgery, up to 1886, had been employed at the Hospital as a rather mechanical art. Indeed, a famous London surgeon, who had thought of applying for the appointment, had been dissuaded, for this reason, that it was below his dignity. But there was a far stronger reason. The Staff intended to have Horsley, and nobody else: it might even be said that they created the appointment for him: Mr. Adams did not retire till 1890. In 1891, Mr. (Sir Charles) Ballance was appointed: he and Horsley were Surgeons together: and in 1906, Mr. Donald Armour and Mr. Percy Sargent were appointed Assistant-Surgeons.

Fifty years ago, and less than fifty years, the rules for operating on the head were those which Ambroise Paré had taught and followed in the sixteenth century. The conditions requiring operation, and the precautions to be observed, were well known. The operation of trephining the skull could not improve itself: it could only wait for some outside discovery to improve it. Paré gives thirty

folio pages to the treatment of wounds of the head: and he writes of them with admirable judgment. Here, for example, from Johnson's translation, is one of his many cases:

> *Monsieur de la Bretesche*, in the triumphant entrance of King *Henry* the second into *Paris*, was so hurt with a stone, that the *Os Petrosum*, or scaly bone, was broken with the violence of the blow, and the temporal muscle was vehemently contused, yet without any wound. I being called the next day (viewing the manner of the hurt, and the condition of the wounded part) thought good to bring some Physicians and Chirurgeons with me to consult hereof. . . . When all of them at the last had inclined to my opinion, I presently divided the musculous skin which was over the upper part of the fracture, with a three-cornered section: the day following, which was the third of his disease, I trepanned him; and after I had done, some few days later, I took out some four splinters of the broken bone; and I put in a plain leaden pipe, by which (I wishing the Patient ever when I drest him to hold down his head, to stop his mouth and his nose, and then strive as much as in him lay to put forth his breath) much sanious matter came forth, which was gathered between the skull and *Crassa Meninx*. Other filth which stuck more fast, I washed out with a detergent decoction, injected with such a Syringe as is here exprest; and I did so much, God blessing my endeavours, that at length he recovered.

The method of operating by stages in such cases was given up: but that is not the point here. The point is that a surgeon, half a century ago, could not do more than Paré had done. He must have something to guide him, something to go by: wound or scar or depressed fracture. Trephining, of itself, was not brain-surgery, but skull-surgery; it was the repairing of the roof of the house of life. The skull must be dealt with, for the sake of the brain: but the less that the surgeon saw of the brain, the better he was pleased.

The date of the earliest recorded case, in this country, of real brain-surgery, is 1876. A boy of eleven, a patient of Macewen of Glasgow, showed signs of acute brain-disease which, from the evidences of cerebral localisation, 'were judged to indicate cerebral abscess situated in the left frontal lobe, in the immediate vicinity of the base of the

third frontal convolution, between the speech-centre and the internal capsule.' There speaks the new learning, with authority: *Nova rerum nascitur ordo.* Macewen desired to operate without delay, but the operation was put off by the boy's friends; he died thirty hours after the consultation; Macewen was allowed to perform the operation *post mortem*, and found the abscess where he had localised it. His next case, an abscess in the left temporo-sphenoidal lobe, was in 1881: he operated, and found the abscess: but it had already infected the lateral ventricle, making the case hopeless. The first successful operation in this country for temporo-sphenoidal abscess was by Arthur Barker, in 1886. We can count on our fingers the cases of modern brain-surgery recorded in our surgical literature, up to the time of Horsley's appointment to Queen Square.

He was more than qualified for it; he was the one man for it. He had been engaged for two years, in his work with Schäfer and with Beevor, over brain-surgery on monkeys; he had done more than a hundred of these operations on animals; he brought to Queen Square a precise and habitual method; he had worked it out on monkeys, he did not have to work it out on man. Especially, he had acquired familiarity with brain-surgery under the very conditions which he would find at Queen Square; the conditions of operating with neither wound nor scar nor depressed fracture to guide him, nor anything else except the facts of cerebral localisation. Six points in his method are to be noted: but, of course, as time went on, he modified it here and there:

1. He was absolutely determined to prevent wound-infection.

2. He was thoroughly familiar with the action of anæsthetics on the brain.

3. Instead of the old cruciform incision, he made a long curved incision and turned down a flap of skin and muscle, so as to expose the skull very freely. There was another advantage; the flap, when it was brought back into position and secured with sutures, kept up steady pressure over the brain.

4. He knew exactly how to expose the brain by a rapid and well-planned removal of bone. So early as 1887, he

added, to the use of the trephine and the bone-cutting forceps, the use of a miniature circular saw driven by a Bonwill's surgical engine.

5. He never used the galvano-cautery.

6. To stop bleeding from the cut edge of the bone, he devised the use of antiseptic wax.[1]

The date of his first operation at Queen Square is May 25, 1886. The patient, a young Scotsman aged twenty-two, had been run over when he was seven, and had been in the Edinburgh Royal Infirmary under Annandale, with a compound fracture of the left side of the skull and escape of brain-substance. At the age of fifteen, he began to have fits: he was in Queen Square in 1885, and was readmitted in 1886. The mind was dull, there was partial paralysis of the right arm and leg, and the fits were of extraordinary frequency: he had 2870 fits during his first thirteen days in Hospital. The 'march' of the fits was well defined. The gap in the skull from the original injury lay over the upper third of the left ascending frontal convolution. The diagnosis was 'scar involving the hinder end of the superior frontal sulcus.' Horsley removed the scar in the brain, and the surrounding brain-substance, to a depth of two centimetres. The wound healed well: the mental condition was improved: and the fits ceased.

The physicians watched the operation with keen interest: and when it was over, Hughlings Jackson let himself enjoy the relaxation of the strained mind. He beckoned to Ferrier: 'Awful, perfectly awful,' he said. Ferrier was shocked: the operation had seemed to him faultless. Again Hughlings Jackson murmured that an awful mistake had been made. 'Here 's the first operation of this kind that we have ever had at the Hospital: the patient is a Scotsman. We had the chance of getting a joke into his head, and we failed to take advantage of it.'

On May 28, at a meeting of the Clinical Society, Horsley read a paper 'On a case of suppuration of the mastoid cells: with remarks on the prevention of septic embolism in such

[1] In his experiments in 1885, he had made use of ordinary modelling wax, worked soft in the fingers. See his letter, Brit. Med. Journ., 1892, i. 1165.

cases.' This paper contains the first suggestion ever made in this country, or, so far as we know, in any other, for the ligature of the jugular vein in cases where suppuration, spreading from the ear to the mastoid bone, has caused the formation of a clot of blood (thrombosis) in the lateral sinus of the brain; particles of the clot may be carried by the circulation into the heart and lungs (embolism): the ligature of the jugular vein would prevent this:

> There remains the question how to prevent embolism of the thoracic viscera, supposing thrombosis to be well declared. The solution of this problem is a simple matter enough, looking at it from the merely mechanical point of view; resolving itself of course into the not very serious operation of ligature of the jugular vein in the middle of the neck.[1]

In August, at the Annual Meeting of the British Medical Association in Brighton, Horsley read a short paper 'On Brain-Surgery.' He had done three operations at Queen Square: he described them, and showed the patients—May 25, excision of scar; June 22, removal of tubercular tumour and of the thumb-area; July 13, removal of splinter of bone and surrounding cyst. This paper was the great event of the Brighton meeting. In the discussion of it, Charcot, Hughlings Jackson, and Erichsen were among those who congratulated him.[2] Erichsen said:

> The old lines of ordinary clinical observation and dead-house pathology have long since been followed to their final termination: we can but multiply the facts already so carefully observed and so admirably recorded by countless observers in every civilised country. It is not to following these old lines that modern surgery will owe its advance; but it is in the application to it of those means of experi-

[1] In 1888, Sir Arbuthnot Lane proved the value of this method (Clin. Soc. Trans., xxii. 255); and in 1890 Sir Charles Ballance formulated exact rules for it, and brought it into general recognition: see his classical paper, in the Proceedings of the Medical Society of London, March 21, 1890.

[2] He stayed at Lancing, with Mr. Frank Cutlack; who writes, 'I can recall his preparations the day before the lecture, when he had his diagrams and an array of instruments all spread out in my conservatory. On the afternoon of the lecture, I ran into the Brighton Pavilion to pick him up: in time to see his patient walking up and down the platform, and to hear delightful old Charcot in his courteous way thank Horsley for his lecture, and for his wonderful services to suffering mankind. It was indeed a glorious triumph, as even a layman such as I could perceive, for so young a professional man.'

> mental research which are now being worked out in the biological and pathological laboratory, that we may hope to find the solution of many of those problems that have hitherto baffled the surgeon.

Horsley's fourth operation at Queen Square, September 23, was wonderful indeed. The patient was completely paralysed on the left side, was suffering from fits, and had been semi-comatose for ten days before the operation. The diagnosis was 'tumour of the cortex involving the upper part of the arm-centre in the right hemisphere.' Horsley removed a mass of glioma of 4½ oz. weight. The patient regained consciousness; the fits ceased; the mental state remained perfect for three months; and the paralysis became less marked, till he could walk with a little help. He died of recurrence of the disease, six months after the operation.

By the end of 1886, Horsley had done ten operations at Queen Square. Nine had been successful—ranging from improvement to complete recovery. One had been followed by death: the patient was a boy with cerebellar tumour: he was worn out with pain, vomiting, and fits; was paralysed, more or less, in all four limbs; and had been bed-ridden for a year before the operation.

At the Brown Institution this year—beside all his other work there—he made many experiments on epilepsy: his Brown Lectures, at the end of the year, were two of them on the thyroid gland, and three on epilepsy (Lancet, 1886, ii. 1163, 1211). He spoke of the confusion of theories of epilepsy, and of the vague phrases in which the disease was described. He would have nothing to do with Nothnagel's theory of the existence of 'special convulsive centres.' He discussed the value of the theory that each hemisphere 'represented both sides of the brain': and said that it could not be proved either from clinical evidence or from experimental evidence. He emphasised the evidences of the independent action of each hemisphere apart from the other; he was of opinion that 'convulsions due to cortical discharge are evoked in various groups of muscles by nerve energy proceeding from that centre in each hemisphere which is in relation to each group of muscles, and that in general-

ised epileptic convulsions both cerebral hemispheres are involved.'

He made a special series of experiments on the disease, during March-July, planned on the lines of Brown-Séquard's work: with direct reference to a very strange case of epilepsy which was under the care of Hughlings Jackson. This case was described by Hughlings Jackson at a meeting of the Medical Society, on November 15; and Horsley showed at this meeting some instantaneous photographs of epileptic guinea-pigs.

About this time, also, he made two experiments on the results of removal of the pituitary body: partly, because of the association of epileptiform movements with disease of the pituitary body; partly, because of the analogy between the pituitary body and the thyroid gland.[1]

Other events of this memorable year were as follows: (1) He was elected a Fellow of the Royal Society. (2) He published a translation of Koch's monograph 'On the Investigation of Pathogenic Micro-organisms.'[2] (3) He disputed with Schiff (Brain, April and October 1886) over the course of certain tracts of the spinal cord, and their connection with the motor area of the cortex: he had the last word in this elaborate controversy; and he fought, it seems, with ease, and even with enjoyment.

1887 (*æt.* 30)

On March 4, at the Royal Institution, and later at the Harveian Society and the Anthropological Institute, he lectured on 'Brain-Surgery in the Stone Age.' He had studied in Paris the prehistoric skulls, with marks of trephin-

[1] These seem to have been the first experiments ever made on the pituitary body. The connection between enlargement of the pituitary body and the disease called 'acromegaly' had not then been dreamed of. It is true that Pierre Marie's note, 'Sur deux cas d'acromégalie,' was published in April 1886: but he made out nothing at that time as to the cause of the disease (Revue de Médecine, April 1886). It was not till 1891 that he and Georges Marinesco published 'Sur L'Anatomie Pathologique d'Acromégalie' (Archives de Médecine, 1891, i. 3, 539. See also New Sydenham Society, 1891).

[2] This translation, seventy-eight pages long, is in 'Recent Essays by various authors on Bacteria in relation to Disease': edited by Watson Cheyne, published by the New Sydenham Society, London, 1886.

ing on them, in the Broca Museum of Anthropology, and had taken many photographs of them. Never were lecturer and subject more happily suited to each other. All his life, he delighted in the study of ancient monuments—British barrows, Roman camps, Norman churches, all the banked-up and built-up history of the countryside; archæology not in glass-cases but under the open air: he had that sense of the past of the earth which is in Mr. Kipling's Puck of Pook's Hill: he loved to explore and to excavate: and the notes and maps and photographs of his findings at Lympne in 1893, and at Eynhallow Monastery in 1911—many days of hard open-air work at Lympne, starting at 6.30 A.M., with men under him—bear witness to his diligence. Thus, the fact that trephining was practised far and wide in the Stone Age found its proper exponent in him, who was both surgeon and antiquarian. The skulls in Paris had been waiting for him ever since they were trephined: and he set everybody talking about them.

It does not appear that he published this lecture; but it was reported far and wide: and there is a good abstract of it, and of a discussion after it, in the Journal of the Anthropological Institute, xvi. 100. From the marks on the skulls, Horsley judged that the trephining had been done, in most cases, by sawing: which in some cases might have been supplemented by scraping. In almost all cases, it had been done over the motor region of the brain: and he ventured on a very ingenious theory:

> This region of the brain is the seat of origin of that special form of convulsions which is known as Jacksonian epilepsy, and which so frequently follows injuries to the skull and brain. . . . This special form of epilepsy most usually commences with a peculiar sensation in one definite part of the body, whence it travels up the limb towards the head—this usually constituting the *aura* or warning of the onset of the fit. This factor is of special importance, since it commonly happens that at the moment when the sensation appears to reach the head, consciousness is lost. If, moreover, the mischief is occasioned by a depressed fracture, there will be considerable tenderness at the injured place; and this becomes exaggerated at the period of convulsions. Putting these facts together, with minor details of such

cases, too numerous to be mentioned here, the following mode in which the practice may have originated among so savage a people seems to be possible.

The tender cicatrix may first have been excised as the source of pain. This probably would have produced a temporary benefit, sufficient to encourage the patient to undergo, in cases of relapse, a further operation for the removal of bone. This would in most cases be followed by relief, not only of the pain, but of the fits also. Consequently the operation would gain a certain reputation for the cure of convulsions generally, and as such might have been frequently practised.

In the discussion at the Anthropological Institute, Francis Galton said that this theory implied more intelligence than savages usually showed. 'In their surgery and medicine they were apt to proceed in a very offhand, ruthless, and unintelligent manner, following their fancies and superstitions rather than experience.' Miss Buckland and Professor Leith said that the trephining had been done to let out the evil spirit, and that convulsions would have been regarded as possession: but they did not accept the argument from the position of the trephine-openings.

In April, he published in the International Journal of Medical Sciences his first contribution to American literature: an essay on the accurate use of such lines and angles of measurement as give the relations between the surface of the skull and the surface of the brain, and enable the surgeon to visualise the motor area of the brain in its exact position under the skull. The necessity for this surveying of the skull had become urgent; much had been done toward it, but not enough:

The necessity has arisen so rapidly within the last few years as to force each practical surgeon to work out the required facts for himself with the aid of the few papers that have appeared on the subject. In the absence of any such desired comprehensive monograph giving a complete directory, as it were, of those parts of the brain whose function is so far understood as to permit of the localisation of lesions within their boundaries, a personal experience, which has so far fortunately been equal to the exigencies of ten cases submitted to operation, may be of use to those who are similarly called upon to explore the cranial cavity.

On June 6, at a meeting of the Odontological Society, he read a paper 'On avulsion of the fifth nerve in trigeminal neuralgia.' This was the beginning of his work and of his teaching for the operative treatment of the disease. From this beginning he went on to the operation for removal of the Gasserian ganglion. No surgeon will ever surpass him in skill and in judgment over this very difficult operation: and, in the earlier years, none was equal to him.

Three days later, came an event which takes a great place in the history of surgery. It was on June 9, 1887, that he removed a tumour from the spinal cord: the first operation of its kind that ever was done. The patient was an officer in the Army: he had suffered for three years, and had been subjected to all sorts of worse than useless treatment. The pain had been so intense that the question had been raised whether he were quite sane. Early in 1887, he began to lose power over his legs. By June 1887, he was suffering not only horrible pain, 'increased to evident agony on any movement,' but partial paralysis of the bladder and complete paralysis of the legs. He was seen in consultation by Sir William Gowers, Sir William Jenner, and Dr. Percy Kidd: and Horsley was asked to operate. The case is recorded by Gowers and Horsley (Trans. Roy. Med. Chir. Soc., liii. 377). After a description of the operation, Horsley considers, one by one, the objections which were in force against operating on cases of fracture of the spine with injury to the spinal cord. These were the only cases in which any operation had been done. There were three objections: (1) the gravity of the operation, (2) the danger of wound-infection, (3) the probability that the cord was irremediably injured, and that no surgical interference would make any difference to it. These objections were so strong that the operation of laminectomy—removal of the vertebral arches, at the seat of fracture, so as to take off pressure from the cord—had seldom been done, though it had been known for more than a century. So late as 1881, Page of Newcastle had said, 'It has made no progress in surgery, nor is it likely to do so: it is an operation not within the range of practical surgery.' No surgeon could think lightly of its

difficulties and risks : and the best of surgeons might well dread the responsibility of doing it for the first time. It was essentially an operation which needed to be studied on animals : but the Act of 1876 had made it a criminal offence for anybody to experiment on a vertebrate animal for the purpose of attaining manual skill. No precise rules had been formulated for dealing with the special difficulties of the operation.

But Horsley, by 1887, had already done the operation, in the course of his work with Beevor, on animals. And he had done it under the conditions which were present in this patient's case ; the conditions of operating, through uninjured muscles and bone, on the cord. He had got his method ready-made, he had worked it all out, every step and stage of it. Even with these safeguards, the operation was of the utmost anxiety ; the tumour was very small, and lay higher in the spinal canal than had been expected ; and Horsley hesitated to extend the wound further. Sir Charles Ballance, who was assisting him, urged him to extend it : and the tumour thus was exposed and removed. The wound healed well. The patient, a year later, reported that he was in excellent health, and had done a sixteen-hours day's work, with much standing and walking. The tumour was of a kind which does not recur : he remained well up to the time of his death from another cause, some twenty years later.

At the end of his account of the case, Horsley gives a list, from British and foreign text-books and journals, of fifty-eight recorded cases of tumour of the cord. With characteristic thoroughness, he tabulates each case under no less than twenty-seven headings. In twenty cases, the tumour was extra-dural, *i.e.* outside the sheath of the cord : in thirty-eight cases, it was intra-dural. The list is full of hopeless misery. 'For all the horrible sufferings of the fifty-eight cases, in only two was any treatment of avail.' One was his patient (intra-dural) : in the other case, some relief was given, for a short time, by the removal of part of a large extra-dural tumour. But of fifty-eight patients, fifty-six died without any help from surgery, after protracted and severe suffering.

In these years of his life, he took no long holidays: but Mrs. Gotch remembers a little holiday of this year, 1887, a boating expedition down the Avon, from Stratford to Gloucester:

> He was always in his element on these expeditions, full of energy and resource, of delight in the country and the open-air life; of interest in the little old inns where we put up for the night; and untiringly exploring the churches and villages which we passed.

Of such holidays as these, Sir Edward Schäfer writes:

> I have been looking through old diaries of the eighties, in which mention is made of many expeditions—on the river and elsewhere—in which Victor Horsley, and later Eldred Bramwell, were constant ingredients: and I may add Frank Gotch and Rosamund Horsley—indeed the two engagements crystallized out under these watery conditions. Many incidents are recalled by the short entries giving dates and places and personnel. On one occasion, when we were passing along a canal with enormous locks and no lock-keepers, we were nonplussed by having no lock-key. Victor insisted on trying to manufacture one with a pocket-knife out of a fence-post: and was quite annoyed with Frank Gotch and myself—the other members of the party—because we insisted on buying a key from a passing barge, instead of waiting for him to finish the manufacture: although I think, if we had waited for a key made in his way, we should still be there! On another occasion, when I was taking a walk with Victor in the Lake District—and a very strenuous one it was—he spent the whole time we were resting (!) on the summit of Scafell Pike, in endeavouring to bury under cairns the evidences, in the shape of paper, left by previous travellers who had picnicked there: but the task proved too Herculean even for him. The amount of superfluous energy he possessed would have been sufficient to endow six ordinary people: and what is extraordinary, the expenditure of it, instead of wearing him down to a premature senility, kept him in a perpetual state of juvenility: I, at any rate, never knew any man who remained so long young or showed evidences of age so little.

On September 26, 1887, Horsley writes from the Brown Institution to Semon, about their work together: and at the end of the letter he says, 'I do so look forward to our resuming work in the winter, when life will be a paradise, not the hell it has been.' He and Miss Bramwell had been

engaged for four years : he was sick of waiting. He used to say, in later life, that the four years had been a waste of time, not real life : that they had done nothing for him : that he had only been marking time.

On October 4, they were married, at St. Margaret's, Westminster. It was a quiet wedding, with very few people there : and the honeymoon was delayed, because a Hospital patient was bringing an action against an omnibus company, and he might be called to give evidence. Happily, the action broke down : and they went to Italy. He was overworked and overtired when they started : he ought to have planned a holiday nearer home : and in Bologna he was laid up with a bad attack of appendicitis. But marriages are above romance ; which is made on earth, but marriages are made in Heaven ; and they are made there, because they must be made where the hearts and the intellects for them are made. Heaven was so pleased with this marriage, that it made another, to go with it : Frank Gotch and Rosamund Horsley were married on December 15, 1887.

It was at some time after 1887 that Horsley devised, for signature of his more intimate letters, his rebus of the



galloping horse, with its V-shaped saddle. The little horse never stood still : it seldom trotted or cantered : it preferred to gallop. Now and again, in his letters to his wife, it pranced, or threw up its heels : but these antics were not for the world to see. With his largest handwriting, it would grow to near three inches long : but it was mostly a small animal, but full of energy : only, it had an archaistic air, as if it were trying to look like the White Horse on the Berkshire Downs.

PART II

SCIENCE AND PRACTICE. PROFESSIONAL POLITICS. PUBLIC LIFE

I

From 1888 to 1892

It was easy to divide into chapters the record of the years from 1857 to 1887 : but the years from 1888 to 1914 are not so easily divided. In these later years, without ceasing to work for the advancement of science and practice, he made time to give himself to professional politics, to plans for the improvement of the national health and efficiency, and to Parliamentary politics. These years, the summer and autumn of a life which had no winter, cannot be kept in strict order of time : there are interests in them which require separate chapters. But this and the next three chapters are concerned chiefly with his work for science and practice.

1888 (*æt.* 31)

On March 5, 1888, at a meeting of the Medical Society of London, Ferrier and Horsley reported a case of cerebral abscess 'treated by operation, with uninterrupted and complete recovery' (Proc. Med. Soc., xli. 233). The day of the operation was December 10, 1887. At this meeting, Horsley spoke of the treatment of septic thrombosis of the lateral sinus, and said that he had already, in one case, ligatured the sinus and removed the septic clot from it. This is the first, or one of the first, references in the literature of surgery to any operation on the lateral sinus.

In April, he was appointed on a Parliamentary Committee 'to inquire into and report upon the nature and extent of pleuro-pneumonia in the United Kingdom, and the effects of inoculation and other preventive measures on that disease : also, to inquire into the nature and extent of tuberculosis in the United Kingdom, and the means to be adopted to arrest its progress.' Thirty years ago, the

protective inoculation of cattle against pleuro-pneumonia was a rough-and-ready method in Australia, New Zealand, and South Africa, which was not well thought of in this country. The whole study of the diseases of cattle was very different from what it is now. The detection of tuberculosis in cattle by the tuberculin test was unknown: tuberculin had not yet been discovered. The Committee felt themselves able to deal with these two colossal questions in less than three months: their report is dated July 10. There is a supplementary report by Horsley, recommending 'that both the forbiddal of breeding from diseased animals, and the notification of the disease (in cattle), should be included in any legislation for tuberculosis.'

On June 7, at a meeting of the Royal Society, Beevor's and Horsley's paper was read, 'Note on some of the motor functions of certain cranial nerves, and of the first three cervical nerves, in the monkey (*Macacus sinicus*).' See Proc. Roy. Soc., xliv.

In the summer of 1888, Gotch and Horsley were working together in Oxford, for their Croonian Lecture: and in August they submitted to the Royal Society their preliminary paper, 'Observations upon the electromotive changes in the mammalian spinal cord following electrical stimulation of the cortex cerebri' (Proc. Roy. Soc., xlv. 18). Before 1888, the influence of the brain over the movements of the limbs had been studied at the beginning of its course, in the cortex, and at the end of its course, in the muscles: but there had been no study of it, or next to none, midway in its course, in the spinal cord. Thus, there was no saying what changes might be imposed on it by the cord. In a case of epilepsy, for example, the convulsive movements might be decided not only by the brain but also by the cord: they might even be more of 'spinal origin' than of 'cortical origin': there are cortical centres, and there are spinal centres: and no observation of the movements of the muscles could distinguish what might be cortical from what might be spinal. Gotch and Horsley set themselves to this problem.

> In order to ascertain what share respectively the centres in the cortex, and those in the spinal cord, have in the pro-

duction of the characteristic epileptic sequence, the action of the latter must be eliminated. . . . For this purpose, we determined to obtain, if possible, evidence as to the excitatory processes of the epileptic convulsion in the spinal cord, by 'tapping' the cord and noting the electromotive changes which, as is well known, accompany functional activity in nerves.

They used a capillary electrometer: and they studied the cord at the level of the lower dorsal region. That form of muscular movement which is called 'epileptic' has a well-marked character, whether it occurs naturally in a case of epilepsy or is produced experimentally by stimulation of a cortical centre. There is, first, a short stage of uninterrupted contraction, which is called 'tonic': then, a stage of interrupted contraction, with jerking of the muscles, which is called 'clonic.' If the character of the electromotive changes in the cord were found to be in keeping with this twofold character of the epileptic movement, it would be evidence that the movement was almost entirely of cortical origin. That is to say, it would be evidence that the movement of the lower limb, induced by stimulation of the surface of the brain, was hardly modified by the spinal centres for the lower limb: for these centres are in the lumbar region of the cord, below the level at which the cord was being tested.

Gotch and Horsley made out two facts of great importance:

1. In the lower dorsal region of the cord, *i.e.* below the spinal centres for the upper limb, but above the spinal centres for the lower limb, stimulation of the surface of the brain was followed by electromotive changes in the cord *if the cortical centres for the lower limb were stimulated, but not otherwise.* This rule was invariable: it is a good instance of the strictness of the localisation of function in the cord.

2. The electromotive changes in the lower dorsal region of the cord, which attended nerve-impulses passing from the surface of the brain to the lower limb, were in keeping with the twofold character of the movement of that limb: that is to say, they gave evidence of their cortical origin; and the capillary electrometer registered this evidence. 'The electromotive change was, first, a persistent stage, next, a rhythmical stage: answering to the tonic and clonic stages of the convulsion. . . . We have repeated this obser-

> vation thirty or forty times, and feel ourselves justified in concluding that we have obtained evidence that during a cortical epileptiform discharge the electromotive changes in the cord are exactly parallel, as regards the character of their sequence, to the convulsions of the muscles as recorded by the graphic method.'

In the autumn of 1888, the first Triennial Congress of American Physicians and Surgeons was held, in Washington. Horsley was one of those who attended it by special invitation, and a very hearty welcome was given to him. He took part in a discussion ' On cerebral localisation in its practical relations.' He spoke of his work in experimental physiology—' These experiments have been performed by myself in conjunction with other observers, and therefore when I refer to them inadvertently as my own work, I beg you to understand that I am simply the spokesman of my colleagues, Drs. Schäfer, Beevor, Gotch, and Felix Semon.' He reaffirmed his theory of the motor centres, which he had submitted to the Neurological Society in December 1886 :

> I believe that in this so-called motor region we have three functions clearly represented: (1) Slight representation of the tactile sensation. (2) Representation of the so-called ' muscular sense.' (3) Great representation of movement. The evidence in favour of this belief is both morphological and physiological. We must believe that these three functions are wrapped up closely together, and that in every given particle of grey surface there is represented this triune function for a single segment of the body. Morphologically, we find that the large cells in the fourth layer are the seat of the representation of movement. I therefore cannot understand why we should not give, to the small cells of the upper layer, the representation of sensation. The physiological evidence on which this belief is founded is both experimental and clinical.

And he went on to speak of the rules to be observed in the operative surgery of the brain.

By 1888, also, he was able to define the operative treatment of those cases of tumour of the brain in which it is not possible to remove the tumour. He had proved that great relief was given by a very free trephining. It lowered the intracranial pressure, and thus arrested, or delayed, the pain, vomiting, and optic neuritis, which are common in

these cases. The date of the first of his operations of this kind is January 1887. This palliative treatment—its name, ' decompression ' was given to it, later, by Professor Harvey Cushing—is all that can be done, in very many cases: and the history of brain-surgery is in great part concerned with the decision of the question—so far as it can ever be decided—In what cases ought the surgeon to set himself to remove the disease, and in what cases ought he to refrain from attempting more than the relief of the intracranial pressure?

1889-1890

In March, 1889, Walter Spencer and Horsley published in the British Medical Journal their ' Report on the control of hæmorrhage from the middle cerebral artery and its branches by compression of the common carotid.' The middle cerebral artery, or one of its branches, is the usual starting-point of a cerebral hæmorrhage in apoplexy. Spencer and Horsley exposed the artery, in the brain of the monkey; and found that its blood-supply was easily controlled by digital pressure on the carotid artery in the neck. ' The vessels were not entirely emptied: some blood still remained in them, but no pulsation could be seen even in the largest of them. The cortex which the vessel supplied became pale. On releasing the carotid, pulsation immediately returned, and the colour of the cortex came back.' If the branches were divided, digital pressure on the carotid stopped the bleeding from them in a few seconds. Doubtless, this method of first-aid treatment might be of great usefulness, if it could be given to the patient at the very onset of the hæmorrhage: but, in practice, this opportunity would hardly ever occur. None the less, the suggestion was founded on observed facts; and is the only suggestion for any really direct treatment of these cases.

In May, at a meeting of the Neurological Society, there was a discussion as to the causes of the difference of temperature, in some cases of injury to the brain, between the two sides of the body. Horsley spoke of eighteen instances of this difference of temperature, which he had observed in

a period of seven years. The problem, he said, could only be solved by experimental physiology: meanwhile, he was averse from all theorising about 'heat-centres.'

On November 7, he gave an address to the Medical Society of Owens College, Manchester, 'On the diagnosis of brain-disease.'

In June, 1890, at a meeting of the Royal Society, Spencer's and Horsley's paper was read, 'On the changes produced in the circulation and respiration by increase of the intra-cranial pressure or tension.'

In August, 1890, he demonstrated and described, at the International Medical Congress in Berlin, the chief results of his work in physiology with Schäfer, Beevor, and Semon.[1] It is certain that he, though he was only thirty-three years old, was one of the most notable figures at the Congress: as it was said of him, that week, 'Dem gehört die Zukunft': to him belongs the future. He gave these demonstrations before large audiences of physiologists and surgeons, many of them averse from admitting all that he had come to show to them: just as in 1889, in Bâle, when he produced by stimulation one very delicate and closely defined movement, and heard over his shoulder a murmur from Goltz, 'Es ist ganz wahr': it is perfectly true. At Professor Waldeyer's house, he arranged an exhibition of photographic studies of brains—such photographs as had never been seen in Berlin. At a great meeting of the Sections of Surgery and of Neurology, he gave an address 'On the surgery of the central nervous system.' He had operated on the brain in 44 cases. Among these 44 cases, there had been 10 deaths. These deaths had been mostly in cases of brain tumour of a malignant nature (glioma, glio-sarcoma). He had done 5 operations for cerebral cyst, and 6 operations of decompression, without a death. He had operated on the spinal cord in 19 cases: in 6 of these, he had opened the sheath of the cord: among these 19 cases, there had been 1 death.

[1] Sir Felix Semon writes: 'Nobody seemed to have expected a demonstration of that convincing character. . . . Everybody was struck by his extreme modesty. To all the compliments justly paid to him, he only responded by an amiable smile, or by disclaiming any extraordinary merit.'

He was elected, this year, an Honorary Fellow of the American Surgical Association. This year, also, he resigned his appointment to the Brown Institution: and was appointed Fullerian Professor at the Royal Institution. He writes, in April, to a friend:

> The time has come when I must give up the Brown. I can no longer go such a distance, and moreover I want to devote myself to working up my new Laboratory at University College. The loss of the income, however, is a very serious point to me, it being nearly £300. The [Royal Institution] Professorship supplies a third of this blank, and when I heard that Romanes would not apply for re-election, I resolved to go in for it. A hundred a year cannot be disregarded under any circumstances: but for me it becomes a necessity to obtain if possible another chance of fixed income, since as a matter of fact I spend at University College the whole of the fees I receive for my classes.

Strange, that he should have to be thinking of £100 a year, when his work was telling on science and practice in half a dozen countries.

1891 (*æt.* 34)

This year, the house in Park Street was wanted back by its owner: and the Horsleys moved to 33 Seymour Street for a few months—here their first child, Siward, was born—and thence to 25 Cavendish Square. Other events of 1891 were the Croonian Lecture; Horsley's Fullerian Lectures; the founding of the Journal of Pathology, with Sims Woodhead as editor; and Horsley's appointment to be Vice-Dean of the Medical Faculty of University College. He writes to Schäfer, on May 11, 'I will endeavour to discover what are the functions of a Vice-Dean besides being vicious. No introductory for me, I think. Let us have a tea-party and side-shows instead.' It was a year, also, of much writing of papers for societies and journals.

The Croonian Lecture was given, in abstract, at a meeting of the Royal Society, on February 26, 1891. The full text of it, *magnum opus* indeed, occupies 250 pages of the Transactions. Gotch and Horsley had studied the passage of nerve impulses not only between the cortex and the cord,

but between many other levels of the nervous system: they give a list, as follows:

Part exposed for Excitation.	Part exposed for Observation.
Brain (cortex and fibres)	Spinal cord.
,, ,,	Mixed nerve.
Spinal cord	Spinal cord at another level.
,,	Mixed nerve.
Mixed nerve	Spinal cord.
Spinal roots	,,
Posterior roots	Mixed nerve.

The principal subjects which they investigated were:

1. The resting electrical difference between the cut surface and the uninjured longitudinal surface of nerve-fibres.

2. The evidence of the localisation of function in the cortex which is afforded by electromotive changes in the cord.

3. The electromotive changes, in cord and nerve, which follow excitation not of the cortex but of the nerve-fibres of the brain.

4. The various conditions under which the electromotive changes, in cord and nerve, afford evidence of unilateral or bilateral representation of function in the cortex.

5. The degree of unilaterality of representation in the cord: and the conditions which favour the spread of impulses from one column of the cord to another.

6. The paths in the cord along which different impulses travel upward on their way to the brain. 'By far the majority of afferent impulses ascend the cord on the same side as the entering root, both by direct and indirect paths; a small minority ascend by the posterior column of the opposite side; and a mere fraction by the lateral column of the opposite side.' That is to say, the frequency with which each of these paths was taken by impulses entering the cord by a posterior (sensory) nerve-root, and ascending the cord toward the brain, was as follows, expressed in percentages: posterior column of same side, together with lateral column of same side, 80 per cent.; posterior column of opposite side, 15 per cent.; lateral column of opposite side, 5 per cent.

7. The complete obstruction to all centripetal impulses which may reach the cord by the central end of the anterior (motor) root.

8. The marked quantitative diminution, and delay, of impulses leaving the cord by the anterior roots.

9. The comparative effects, in a mixed nerve, of reflex excitation and direct excitation.

At the Annual Meeting of the British Medical Association, in Bournemouth, he read a paper 'On craniectomy in microcephaly.' Lannelongue of Paris had recently devised this operation; the free removal of one or more areas of the skull, in cases of microcephalic idiocy, to lessen the pressure on the brain, and thus to give it some chance of development. Lannelongue had done this operation in two cases, Keen of Philadelphia in three, Horsley in two: one of his patients had been improved, the other had died after the operation, with rapid hyperpyrexia—that rise of the temperature to 107° or 108° which occurs in some cases of injury or disease of the brain. In his paper, he called attention to this danger of the operation—that the brain, with its imperfect development, might fail to adapt itself to the sudden change, and might react in some abnormal way, leading to death. Still, he was inclined to be in favour of the operation because of 'the utterly hopeless future that awaits these cases,' and because the one and only possibility of saving them from it was by operation.[1]

At the opening of the winter session at University College, he gave the introductory address, on 'The Student and the Practitioner': it is admirable, full of good advice and good feeling.

On November 12, at a meeting of the Ophthalmological Society, he and Beevor reported a case of cerebral abscess in the left angular convolution, with right hemianopsia and 'word-blindness.'

In November, also, he published, with Dr. James Taylor

[1] A letter has come (May, 1917) from the father of a child on whom Horsley did this operation. With the letter, were two photographs, one of a microcephalic idiot baby, the other of a good-looking young officer. 'In the autumn of the year 1897, I took my child, then about nine months old, to seek the doctor's advice, the baby's forehead being contracted, there being no fontanelle. Sir Victor strongly advised an operation: and as I was not well off it was a great relief to me that he never charged me a penny either for the two consultations or for the two operations (my wife's brother and my own brother being doctors), besides which he gratified my wife's longing to be with her child—her first—by procuring a private ward for her at University Hospital. Two pieces of bone were removed at an interval of a fortnight. The child rapidly recovered. . . . He has been a comfort to us all our life. . . . He has been a year in charge of a trench mortar battery, and has been especially commended for repelling a raid in the trenches. So that I have much to be thankful for, that under God I met with Sir Victor.'

and Dr. Walter S. Colman, a long paper, 'Remarks on the various surgical procedures devised for the relief or cure of trigeminal neuralgia' (Brit. Med. Journ., November 28, December 5, December 12, 1891). It is a full historical review of the rise and advance of the operative treatment of the disease. It was published just before he had finally mastered the operation for the complete removal of the Gasserian ganglion. He had made dissections for the study of this operation, some years before: but he was still held back by one difficulty: 'for this reason, I believe that the complete removal of the Gasserian ganglion is not possible.'

Beside these addresses and papers, he published:

1. On the Analysis of Voluntary Movement. XIX Century, June 1891.
2. Die Function der Schilddrüse: eine historisch-kritische Studie. In Virchow's Festschrift, 1891.
3. Ueber den Gebrauch der Elektricität für die Localisirung der Erregungserscheinungen im Centralnervensystem. With Professor Gotch. Centralbl. f. Phys, January 31, 1891.

1892 (*æt.* 35)

The house in Cavendish Square, which was the Horsleys' home from 1892 onward, had been occupied by Dr. Radcliffe, a scholarly old physician; and, before him, by Dr. Brown-Séquard. It is a fine house, well suited alike for entertaining and for a great rush of home affairs: but in the annals of consulting practice it is only the ground floor that comes to be described. His consulting-room was the front room on the ground floor; it looked on the Square, which is pleasant enough to look at, when the leaves are on the trees; it was comfortable, cheerful, white-walled, and neither too large nor too small. Among his belongings in it were models in yellow marble of temple-columns in the Roman Forum, and a very beautiful drawing of San Miniato in Florence, by Gerald Horsley; and, on the mantelpiece, bronzes from Rome, and some treasured little casts of a monkey's brain. Opening into the consulting-room, there was a well-fitted dark-room, for the examination of the eye, ear, and throat; it is probable that no other surgeon in London had such a good dark-room. And it is certain that he was the first of the

Staff of University College Hospital to have a telephone in his house. In the dining-room, which was used as the waiting-room, the chief picture was a great photograph of the Tiber with St. Peter's and the Castle of San Angelo: this he had brought from Rome in 1882. But the pride of the ground floor was neither of these rooms, but the great sky-lighted room at the back, which was his workshop. Probably it had begun life as a billiard-room. He made it live up to every inch of its space and every ray of its light. Here in spare hours and half-hours he worked with his hands, dissecting, section-cutting, photographing and developing, drawing and diagram-making, and so forth. One side of the room was taken up with apparatus for photography and micro-photography:[1] on the opposite side was a lathe: there was a big stack of cartoons for lectures, and accumulated photographs and negatives, and lantern slides, and his collection of thousands of microscope slides, and on the shelves a heavy load of notes and papers which he did not live to put in order. Always, he loved to use his hands; he did everything for himself. It was not a private museum that he was making, it was a records office: he had no love of collecting for the sake of collecting: he kept evidences of cases, just as he kept notes of cases.

At the annual meeting of the British Medical Association in Nottingham, he was President of the Section of Pathology; and spoke his mind against that sort of pathology which hardly gets beyond the microscoping and exhibiting of diseased organs:

> However absurd the statement may appear to some, I venture to assert that pathology, as such, is almost unknown among us. The fact is, that what is commonly spoken of as 'pathology,' taught as 'pathology' and made the subject of examinations in 'pathology,' is nothing of the sort—it is not pathology, it is morbid anatomy.

[1] Dr. MacNalty writes, 'I went with him to purchase an excellent and costly apparatus for micro-photography (Zeiss); and we spent many Sunday afternoons and evenings together, taking photographs, developing them, and trying the effect of different coloured solutions to act as filters for the electric arc light. His hands were sometimes stained with chemical reagents: and a lady patient is reported to have said, "I like Sir Victor Horsley very much; but I do wish he would wash his hands before he comes to see me."'

> Suppose a student had paid to be instructed in physiology, and suppose all that his teacher did was, first, to describe the coarse or naked-eye structure of the healthy body, next its minute or microscopical structure, and, finally, to make some crude guesses as to how the various organs worked, should we not say that that student had been defrauded? Yet is not this picture a fair representation of what is usually done with pathology in this country? We have in London a society whose function, as defined in its title, is to promote the study of pathology: but unfortunately it has hitherto been only an emporium of morbid anatomy. . . . I regret that in the representative work of the Pathological Society this study should be allowed to usurp the place of pathology. The pathologist should be the student of disordered function, as well as of disarranged structure. . . .
>
> What a mass of facts has been accumulated in elucidation of the various changes in the structure of the lungs produced by pneumonia, phthisis, etc. But how many workers have been found to investigate the degree and effect of the loss of the respiratory function, of the disorder of the normal oxygen and carbonic acid ratios? Yet this is what kills, this is the whole work of the disease: and this is what must be solved before the treatment of such diseases can be worthy of mention other than as empirical palliation. . . .
>
> To what are we to ascribe this surprising indifference to pathology? I have not the slightest hesitation in saying that it is due to want of familiarity with modern progress in physiological and chemical research. Fortunately, laboratories are springing up now on all sides, original investigations are being pushed forward, light and knowledge widely diffused. The reproach that we have been dead-house students rather than true pathologists will therefore soon be wiped away.

This high-handed criticism of the Pathological Society was answered by Hadden: but the fact remains, that the Society did lend itself too easily to the mere exhibiting of specimens and 'card-specimens'; and some of us, it may be, were tempted to call attention to our specimens for the purpose of calling attention to ourselves. Horsley had no patience with that. To him, pathology must be advanced and guided, like physiology, by the experimental method. He rather avoided than sought the older Medical Societies: he preferred the new, exclusive, less formal societies—the Physiological, the Neurological, and the little Medical Research Club—which cared only for work of originality,

and were utterly opposed to anything commonplace and third-rate.[1]

Early in 1892, he moved up a place on the staff of University College Hospital; and thus became assistant-surgeon to Mr. Christopher Heath, and had charge of the wards when Mr. Heath was away. He also had the night work: for Mr. Heath did not care for it. The two men were not well suited to each other; they were apart in age, and in outlook; strong-willed, both of them; and Mr. Heath was apt to be in the imperative mood. There are letters of 1894, which recall a frequent difficulty of Hospital practice. Mr. Heath writes:

> I must again ask you to exercise a little more care in sending patients into my wards. Last Monday I saw a woman to whom you had just given an order for immediate admission. . . . As it was clearly a case not admitting of operation, I sent her to the parish infirmary.
>
> To-day I find a case of hernia admitted by your order for radical cure, the man being forty-eight years of age, and no proper care having been given to fit a proper truss. I have ordered a truss and shall then send him out. Cases of this kind should, I think, be treated by the out-patient surgeon.
>
> I shall be glad to give notice at the next meeting of the Medical Committee of the following—Mr. Heath to move That all cases of Empyema, and Intestinal Obstruction, be admitted to the medical wards in the first instance.

Horsley answers at once:

> . . . Personally I do not think it is proper treatment to merely apply a truss in a man aged forty-eight, who being

[1] There is a letter to him, January 1892, from E. H. Hankin, who then was in Agra, organising the work of chemistry and bacteriology in the North-West Provinces: 'I am sending you a reprint of a paper of mine on alexins. In it you will see that I have returned to the question of the relation of my work to Wooldridge's, and have made an attempt to justify the view that I have taken of it. . . . Perhaps you will remember an occasion at the Medical Research Club, when everybody was gaily jumping on me, more intent on proving their points than on sparing my feelings: and I much hope that the experiments I have now published will enable us to bury the hatchet. At present I am more keen on poisons than on bacteriology. I have nothing to do but medico-legal work, and I feel pretty sure that many of the native poisons are completely unknown to science. I have a large collection of them already, and the only difficulty is to know which to investigate first.'

> healthy has presumably several decades of life before him, during which he is constantly exposed to the risk of strangulation. . . . I will arrange that your motion shall be put on the Agenda paper for the next meeting. Personally I am not sure that it is advisable to raise the point for discussion in the way indicated, since every one is agreed that more cases die from operation being undertaken too late than from any other cause.

In March, 1892, he gave an address to the Cardiff Medical Society, 'On the origin and seat of epileptic disturbance' (Brit. Med. Journ., 1892, i. 693). He spoke of the experimental study of the disease, and the work of the Croonian Lecture: he demolished the old theory that an epileptic fit is accompanied by 'anæmia of the brain': and he was unwilling to believe in epilepsy of 'spinal origin.'

Much of his time, in 1892 and 1893, was spent over the preparing and giving of the Fullerian Lectures at the Royal Institution: he gave twelve lectures in 1892, and ten in 1893; all of them on subjects related to the nervous system. It was no easy duty, with his many other engagements, to get through these long courses of lectures; he had to range far and wide for subjects; thus, one of the 1893 lectures was on hypnotism. Some of the earlier lectures were published, in 1892, in book form: they are good, but they suggest Pegasus in harness: they do not show the strength of his work.

A more notable piece of writing, this year, was his long paper, 'Topographical relations of the cranium and surface of the cerebrum,' published in vol. vii. of the Cunningham Memoirs, Royal Irish Academy, Dublin, 1892. It is, of course, on the lines of his 1887 paper in the International Journal of Medical Sciences: but he adds new details, and references to the regional anatomy of the brain at different periods of life.

In October, 1892, at the Church Congress in Folkestone, he spoke in a discussion of the question, 'Do the interests of mankind require experiments on living animals, and, if so, up to what point are they justifiable?' He swayed the meeting to such excitement as nobody had expected of it.

Miss Cobbe had just published her book, The Nine Circles: he spoke of it as follows:

> I have taken the trouble to collect all the experiments in which cutting operations are described as having been performed by English scientists, and in which I knew anæsthetics to have been employed. These experiments are 26 in number. In all of them chloroform, ether, or other anæsthetic agent was employed. But of these 26 cases, Miss Cobbe does not mention this fact at all in 20, and only states it without qualification in two out of the remaining six. When we inquire into these 20 omissions in the 26 cases, we find in the original that again and again Miss Cobbe has, in making her extracts, had directly under her eyes the words 'chloroform,' 'ether,' 'etherised,' 'chloroformed,' 'anæsthetised,' 'during every experiment the animal has been deeply under the influence of an anæsthetic,' and so forth.[1]

He went on to tell of a certain Duke, whose brother, at a time when rabies was about, was bitten by a dog: how the Duke, though he was a Vice-President of an anti-vivisection society, had asked for the use of Pasteur's test on a rabbit.[2] Public opinion, in the course of the quarter of a century since 1892, has come to see the value and the necessity of experiments on animals, and this episode of the Folkestone Church Congress is of no present interest: but Horsley's speech at the time had great influence, and was reported everywhere. He pursued Miss Cobbe and others into the Times, and went so far as to call her a liar; Tyndall, among those who wrote to him, praised him for 'calling a spade a spade'; and there was a little picture by George du Maurier, in Punch, of 'Miss Fanny' and 'Master Victor': the original drawing was bought and given to Horsley by some of his friends. He writes to Schäfer, on October 28, of the closure

[1] Miss Cobbe had said in her preface, 'So far as it has been possible, the use or absence of anæsthetics has been noticed in regard to all the experiments cited in this book.' It was urged in her excuse, after the exposure of the book, that it had been 'compiled' not by her, but for her.

[2] In January, 1891, Horsley had written a very polite letter to the Duke, suggesting that, as he had consented to experiments on animals, he ought to withdraw his name from the anti-vivisection society—'On the occasion of the attack upon Lord —— by a presumably rabid dog, you consulted me as to the advisability of his lordship being treated by M. Pasteur's method, and requested that inoculation experiments from the body of the animal should be carried out for you (to determine the question of its rabidity), which was accordingly done.'

of the correspondence in the Times, and of a proposal for a book about experiments on animals :

> *Oct.* 28. I personally do not think it would be well to write to-day, or possibly under a week. The reasons are first, that I went last night to the Times office to meet Buckle, the Editor, whom I know well. Buckle told me that he is most anxious to close the discussion altogether, and I quite understood from him that he would not put in any more letters after mine of to-day. The next point is that the Association [for the Advancement of Medicine by Research] will bring the facts out as soon as possible. They are considering now the offer received from Griffiths and Farran to publish the work free of cost. Your summarised statements would form admirably the basis of the book. *Nov.* 19. Frank Gotch and I propose to walk in the Lakes. Of 4 Xmas walks not one has been unsuccessful, and if we have snow the scenery is very fine. What do you say ? I trust Yes.

II

From 1893 to 1898

1893 (*æt.* 36)

In January, Horsley and Rubert Boyce published in the British Medical Journal their 'Preliminary report on œdema.' The old easy-going notion of œdema as nothing more than a physical process, a mere oozing of blood-serum into the tissues under mechanical conditions of pressure, had been disproved by Ranvier, Heidenhain, and Wooldridge. Œdema was the result of the actions and interactions of living tissues; all physical explanations were useless: the facts of œdema were as complex as life could make them; and Horsley and Boyce were able to give a formidable list of no less than nineteen 'divisions of the subject, on which more information must be obtained.'

In March, he gave a clinical lecture at Queen Square, 'On paraplegia as a result of spinal caries (compression-myelitis) and its treatment' (Clin. Journ., March 15, 1893). It is a reminder, to all students of his life, that his work for the surgery of the spinal cord is every bit as great as his work for the surgery of the brain. In this lecture, he speaks of those cases of spinal caries in which the cord is compressed (with paralysis below the site of compression) not by deformity of the vertebræ, nor by abscess, but by inflammatory thickening of the sheath of the cord. He showed five cases: two of inflammatory thickening, three of abscess: all of them had improved since operation, and would improve further with more time. 'I would press the advisability of early resort to operation. I have seen the most painful deaths occur in these cases unrelieved, when a timely operation would have saved their lives.'

On May 18, at a meeting of the Royal Society, Beevor's

and Horsley's paper was read, 'A further minute analysis, by electrical stimulation, of the so-called motor region (facial area) of the cortex cerebri in the monkey (*Macacus sinicus*).' They define the centres for the movements of the face, the tongue, the soft palate, and the pharynx; especially, they differentiate the centres for the movements of the lips, and of the corners of the mouth: they also clear up a confusion in the use of the term 'bilateral movement.'

At the Newcastle-on-Tyne meeting of the British Medical Association, he spoke in discussions on the treatment of mastoid disease, and on the pathology of the thyroid gland; and opened a discussion on the treatment of cerebral tumour. During the seven years since his first operation, he had modified his method: he had changed the pattern of an instrument; he had adopted Bramann's method of applying the antiseptic gauze; he had given up, or was about to give up, the combination of morphia with a volatile anæsthetic; and he was performing the operation in two stages, first the removal of the bone, later the removal of the tumour. He had not modified his principles; he had only strengthened them by wider acquaintance with cases kept for years under useless medical treatment; and he said again, as he had said in Berlin in 1890, that the medical treatment and watching of 'suspicious' cases ought to be limited to six weeks, unless some notable improvement took place in that time: but he would allow a longer time for the medical treatment of a tuberculous growth in the brain. The case must be judged 'suspicious' from the progressive character of the symptoms. 'In the first case of cerebral tumour upon which I operated, there was no optic neuritis, no vomiting, and only some headache. The frequency of this exemption is known to all neurologists. To wait, therefore, as is frequently done, for the onset of optic neuritis, vomiting, or headache is not justifiable.' Finally, he spoke (1) of the bad outlook in all cases of glioma or glio-sarcoma, (2) of the great relief given by decompression, (3) of the bare chance that decompression, in this or that case, may bring about not only relief of the symptoms, but actual retro-

cession of the growth. On the first of these points, he said :

> I do not know what may be the experience of other surgeons, but personally I have never been asked to operate in any case of glioma in which the symptoms had not become so marked as to make it evident, or at least suggestive, that very considerable infection had already occurred ; and in every case of glioma or glio-sarcoma that I have removed, the tumour has been of such a size as to render it uncertain at the time of the operation whether or no the complete removal had been effected ; and in all such cases recurrence has ultimately taken place. I have, therefore, in cases of glioma considered the question of operation more from the point of palliation than cure. But that is only because, under the present *régime*, these cases come far too late to the surgeon ; and until we have a case of glioma or sarcoma operated upon under the same circumstances as it would be were the tumour situated in the limbs and not in the brain, it is obviously quite illogical to draw conclusions as to the curability of glioma from statistics drawn from the cases at present offered to the surgeon.

This year, he received from the Faculty of Medicine of the University of Edinburgh the Cameron Prize, awarded annually ' to the practitioner or member of the medical profession who has done most in the past year for practical therapeutics ' : and in December he lectured in Edinburgh, at the Oddfellows' Hall, on some points in the physiology of the brain and of the thyroid gland.

Other writings, in 1893, were as follows :

1. An Introduction to ' The Chemistry of the Blood, and other Scientific Papers, by the late L. C. Wooldridge.' [1] This volume was edited by Horsley and Starling.
2. The Fullerian Lectures for 1893.
3. The Evening Lecture at the annual meeting, in Nottingham, of the British Association : on ' The discovery of the physiology of the nervous system.'
4. A post-graduate lecture on ' The surgical treatment of nervous diseases.'

[1] Wooldridge died young ; he would have become one of the greatest of our physiologists. His death was a grievous loss to Horsley. They had stood against each other for the appointment to the Brown Institution : they had worked together there in close friendship. Horsley learned much from Wooldridge, and had the utmost regard for his work ; and to be learning from men always made Horsley desire to be in friendship with them.

On February 14, 1893, the Horsleys' second son was born.[1] There is a letter from a grateful patient in Odessa, on whom Horsley had operated for trigeminal neuralgia :

> The operation, which you have so skilfully and artistically performed, is in a very splendid state. I feel myself very well, no idea of neuralgic pains, no dizziness, neither deafness nor disease. The medical men of Odessa are really astonished by my present state of health, and they admire 'la finesse' of your operation. Receiving the 'Graphic,' as a voice of my friendly England, I was happy to read a short notice about your lecture concerning hypnotism. Another new incident occasioned to my whole family a shouting sensation and cheers—Imagine yourself, dear Professor, what a noise could be made if there took part a chorus of my seven children and five others with papas and mammas. I proposed a cheer for Mr. and Mrs. Horsley, their first and *second son*! God grant you and your lady and children a happy and a long life ; you are and you will be our dearest friend, and we shall never forget your kindness.

1894 (*æt.* 37)

Two signal honours came to him this year : (1) The Royal Society awarded to him one of its gold medals, 'for his investigations relating to the physiology of the nervous system, and of the thyroid gland, and to their applications to the treatment of disease.' (2) The University of Halle, at its bicentenary festival, gave him the honorary degree of a Doctor of Medicine.

He began, this year, a long series of experiments, with Dr. Butler Harris, on a wholly new subject in physiology : the estimation of the oxidising power of the several tissues of the body.

In brain-surgery, he published (1) his lecture at the Royal Institution, April 6, 'On the destructive effects of projectiles' ; (2) his paper in the Quarterly Medical Journal,

[1] Captain Oswald Horsley, M.C. (and bar), Gordon Highlanders. Educated at Bedale's School, and at Christ Church : received his Commission, November 1914 : thrice wounded : joined Royal Flying Corps in August 1917 : promoted flight-commander, March 1918 : killed, while flying, by a failure of his machine, August 19, 1918. He, like his father, had a wonderful power of drawing men to himself : wherever he was, at school, at Oxford, in training at Aberdeen, or on active service in France, men remember the charm of his presence and of his influence.

July, 'On the mode of death in cerebral compression, and its prevention.'

These two writings, and the paper by him and Spencer, in 1890, on intra-cranial pressure, ought to be taken together: they are concerned, all three of them, with the evidences that in death either from disease or from injury of the brain, the failure of respiration precedes, not follows, the failure of the heart.

The paper in the Quarterly Medical Journal begins with an account of the experimental studies of this subject by Leyden, Leonard Hill, and others: then it comes to the question, What is to be done? Sudden death is frequent, among cases of cerebral tumour, hæmorrhage, or inflammation: there is increased intra-cranial pressure in all of them: and it arrests the breathing before it arrests the heart. Horsley writes of four cases of cerebral tumour. In one, the patient had died suddenly in bed, a few hours before the time fixed for operation. In the other three cases, the operation had just been begun:

> Since the clinical picture of this alarming accident was precisely the same in each case, one description will serve for the three instances.
>
> The patient had been successfully anæsthetised, placed on the operation table, the head suitably arranged, and the skin-flap and superficial tissues removed from the bone. In one the trephine had already been applied for a few seconds, in the others not, when the patient suddenly turned very white, the respiration became extremely shallow for a few breaths, and then stopped altogether. In each case artificial respiration was immediately commenced, and while it was going on the skull was opened very freely in a few minutes, as quickly as possible, with the trephine and bone forceps, and in each case over the presumed situation of the tumour. . . . In every instance, directly the skull was adequately opened, and the pressure relieved, normal respiration returned, the movements being naturally a little shallow at first, but soon assuming their customary proportions.
>
> In these cases the arrest of respiration would have been inevitably fatal, as has been the result in other cases of which I have been informed, where the patient either died on the table, or as soon as artificial respiration was stopped. A very striking instance of precisely the same event, and of

> the recognition of the true state of things by the operating surgeon, is a case of cerebral abscess, published by Mr. Jalland in the Lancet, where during exposure of the abscess, the patient having stopped breathing, he punctured the brain, and witnessed the gratifying return of respiration in proportion as the pus flowed out.

He goes on to speak of certain cases not of disease but of sudden injury to the brain :

> The class in question is that in which a patient receives a violent blow, frequently in the occipito-temporal region, *e.g.* from a fist or cricket-ball, or from an explosion, and in which the person struck falls, as is stated, dead. In these instances we do not observe that any attempt is made to do artificial respiration, although this is just a measure which is universally taught in ambulance classes, and can be practised properly by any intelligent layman. In all probability these have always been considered to be deaths by heart failure, but they are as certainly deaths from respiratory arrest, a fact which can be proved experimentally on the lower animals, with unfailing accuracy.
>
> Dr. Kramer and myself have recently shown precisely the same to be the pathological explanation of sudden death from bullet-wounds of the cerebral hemispheres.

This long series of experiments, with Dr. S. P. Kramer of Cincinnati, was made during 1893 : toward the end of that year, Horsley read a paper, at a meeting of the Liverpool Medical Institution, ' On the cause of death from bullet-wounds of the cerebral hemispheres ' : on March 15, 1894, at a meeting of the Royal Society, a paper by Kramer and Horsley was read : and on April 6, Horsley gave his lecture at the Royal Institution.

It is characteristic of him, that he was quick to find the meaning in surgery of facts which had been put on record without reference to surgery : he went over great stretches of published science as a man goes over the ground with a divining-rod. Experiments had been made and published, before 1893, on the effects produced on non-living structures by the firing of bullets into them : none had been made on the physical effects of a bullet-wound of the brain during life. He therefore not only repeated these earlier experiments, but added to them a series of experiments of an altogether new



FIG. 1.—POINTED (SERVICE) BULLET.
·22 CALIBRE. CAST OF EFFECT IN CLAY.

(The tapering of the cast shows the gradual loss of velocity. The bullet is seen at the end of the cast, apex upwards. The narrow part of the cast is where the bullet began to turn over, and the track of destruction changed from cylinder to flat tear. (Proc. Med. Soc. Lond.)



FIG. 2.—·310 SOFT LEAD BULLET.
CAST OF EFFECT.

This cast shows the much greater destruction caused by a bullet of larger sectional area, and one which, being soft, deformed easily. Its penetration is proportionately lessened. (Proc. Med. Soc. Lond.)

kind: and his lecture at the Royal Institution gives an account of the whole output of his work on this subject.

He begins by clearing away the old idea that the 'wind of the shot'—the air compressed in front of the projectile, which Boys had made visible in a photograph of a flying bullet—has any destructive effect. In the first place, it exerts very feeble pressure, as tested by a delicate vane; and in the second place it is certainly easily reflected from surfaces of but moderate density. Nor does the rotation of the bullet, nor the heat of it, have any destructive effect. What does destroy the tissues is the sudden rise of fluid pressure in them. Huguier had recognised this fact, after the fighting in Paris in 1848: 'it will be remembered that in that struggle, as in others, the appearance of bursting within the tissues was very noteworthy, and gave rise to the notion of explosive bullets having been employed by the combatants.' Huguier had fired into dead organs—lung, liver, etc., which have much fluid in them—and had convinced himself that 'the energy of the moving projectile being imparted to the particles of water caused the dispersion of these in a hydrodynamic fashion.' Kocher, in 1874-76, by many experiments, had proved the truth of this theory of hydrodynamic action: that not the bullet but the tissues are explosive.

Kocher's experiments had been made with the Vetterli rifle: Horsley's were made with the ·303 rifle, which had lately been introduced into the services: and Sir Andrew Noble had, at his request, provided him with a 22-calibre rifle modified to fire a 40-grain bullet at any set velocity from a few hundred to 3500 feet per second. He experimented with clay, with doughs containing known proportions of water, with canisters filled with dry or wet lint; with skulls, and with bullets fired through water. To get permanent records of the effect of firing bullets into masses of clay, he took plaster casts of the explosion cavities: these famous casts are now (July 1918) in the War Museum of the Royal College of Surgeons. This long series of experiments on non-living structures made it plain that Huguier, and Kocher after him, were right: that the effects of a penetrat-

ing bullet-wound of the head must of necessity be (1) a slight increase of intra-cranial pressure, by depression of the fracture of the skull: followed immediately by (2) a very great increase of intra-cranial pressure, a hydrodynamic explosion, most marked on the side of entry, and so powerful that it might even disrupt the skull.

To these experiments in physics, he added a long series of experiments on animals under anæsthesia. He proved that the infliction of a bullet-wound of the brain was followed, first, by complete arrest of respiration, and slight fall of the central blood-pressure, with consequent slight fall of the peripheral blood-pressure. From five to ten seconds later, there came a remarkable rise of the blood-pressure, till it was even above the normal:

> These observations prove beyond doubt that the first cause of death is not what it is usually supposed to be, and as taught in the text-books, namely, arrest of the heart, and syncope: since, as you see, the heart goes on beating although the respiration has completely stopped. Furthermore, if we quickly perform artificial respiration, we obtain recovery from the otherwise fatal arrest. This suggests very strongly that the police and persons who are trained in giving first aid to the wounded should be taught that, with a gunshot wound of the cerebral hemispheres, the proper thing to do is to employ artificial respiration rather than the giving of stimulants, etc. But, as you may well expect, the matter does not end here, nor is it so very simple.

Anæmia of the brain, or pressure from hæmorrhage into the brain, would tend to make artificial respiration useless. Still, the fact holds good, which Horsley first worked out, that the respiration fails before the circulation. Some years ago, a man called on Dr. Shuter of Chiswick, complaining of sleeplessness and nervousness. He had been drinking, and was strange in his behaviour: and by and by he pulled out a revolver. *Put that down*, said Dr. Shuter: the man fired at him, then turned the revolver to his own head, and shot himself, and fell. Dr. Shuter at once did artificial respiration; but, as Horsley says, 'the matter is not so very simple'; and the man did not come back to life. But there is a well-known case—not of injury but of disease affecting

the brain—in which the patient's life was saved by this method: and a very valuable life it is.

1895 (*æt.* 38)

Three honours, this year: (1) He was made a Corresponding Member of the Société de Chirurgie de Paris. (2) The membership of the Athenæum was given to him, without ballot. (3) At the end of the year, the Fothergillian Prize was awarded to him by the Medical Society of London.

In February, at a meeting of the Newcastle-on-Tyne Clinical Society, he read a paper 'On oxidation in the tissues': an account of the experiments which he and Dr. Butler Harris had made, by Ehrlich's method, on the oxidising or reducing powers of various tissues of the body, as shown by their influence on methylene-blue injected into a vein.

In March, he gave evidence in a legal action over Harness's 'electric belts'; and lectured, at the Royal Institution, on electrical currents in the living body. He said that, though the construction of a scientific basis for medical electricity was not yet very far advanced, it was none the less in progress: 'the chief need was for more investigators, and for more general sympathy with a branch of medical treatment which had hitherto been somewhat unfortunate, owing to the manner in which it had been exploited by ignorant pretenders.'

In July, he published a paper, in the Practitioner, on 'Five cases of leontiasis ossium, in three of which the disease was removed by operation.'

But his chief contribution to surgery, this year, was at the annual meeting, in London, of the British Medical Association: 'On seven cases of injury or disease of the cervical vertebræ treated by laminectomy.' This address was of the more importance, because interference with the cervical part of the spine had rightly been judged more hazardous than interference with the dorsal or the lumbar part. Of these seven patients, one had died, not from the operation, but four months after it, and a month after

leaving the Hospital. At the meeting of the British Medical Association the year before, in Bristol, Mr. Alfred Parkin had spoken very hopefully of the operation, and had reported six cases: but in only two of them had the operation been on the cervical part of the spine: and the general opinion of the meeting had not been hopeful of much gain from interference in that region. Three of Horsley's patients attended the London meeting, and displayed their powers: 'it was hard to believe,' says a medical journal, 'that when they came under Mr. Horsley's care they were paralysed in all four limbs.'

In October, he gave the introductory address at the opening of the winter session of the Sheffield Medical School. He told the students that their calling was 'at once the most difficult and the most straightforward; the most responsible and the most interesting; the most discussed and the least understood of all professions.' He told them that, so soon as they had passed their final examination, they ought either to assist a good general practitioner for six months, or hold a Hospital appointment, or travel. Then he spoke of drawbacks in practice; of unfair competition, of touting and bullying 'Medical Aid Associations,' and of quacks—'the wretches who rob the ignorant not only of their wealth but of what is beyond price, their health.' Finally, he spoke of the British Medical Association, the Medical Defence Union, and the General Medical Council—what had been done to help and protect the profession, and what had been left undone.

1896 (*æt.* 39)

His published writings, this year, were: (1) The Fothergillian Lecture, on the thyroid gland, with special reference to 'Graves's disease.' (2) A lecture at University College Hospital, on traumatic neurasthenia. (3) A paper in the Medical Magazine, on the duties and functions of the General Medical Council.

At the Carlisle annual meeting of the British Medical Association, there was much hostile criticism of the General Medical Council, by him and others.

At the opening of the winter session, he gave the introductory address at Yorkshire College, Leeds: it is in part concerned with the praises of chemistry as a foundation of all medical teaching.

Another event of 1896 was his resignation, in February, of the Professorship of Pathology at University College; he no longer had time for the systematic lecturing. Before him, Bastian had been Professor, and had given the lectures; Horsley had been Assistant-Professor, and had taught the practical class. When he succeeded to Bastian, he had rearranged the department, making it more convenient for research work in pathology and bacteriology; he had published its Reports, in fine style; and he had instituted a sub-department of pathological chemistry, under Dr. Vaughan Harley. The Professorship had cost him more than it had paid him. He writes to a colleague, February 5:

> The fact that I have run the Department at a loss, and that it cannot at present be managed otherwise, is of course no credit to the College, but I think it is unavoidable for at least some years to come: and that is my reason for saying that I think it must form one of the possible conditions which my successor would have to contemplate meeting. In thus recognising the inevitable, I do not put the point forward as constituting a *qualification* for the post, only an eventuality in which the future professor will be involved, and therefore one which must be laid before the candidates.

It goes without saying, that he had set himself, year in year out, to advanced teaching. He and Rubert Boyce, the Assistant-Professor, had resolutely maintained the work of the department at a very high level: too high for any student who cared only to satisfy the examiners. Dr. Charles Bolton has written:

> When he was appointed to the chair of pathology at University College, experimental pathology was practically non-existent in Great Britain. Under Horsley's directions, the pathological department at University College became a definite and well-known centre for research in experimental pathology. He did not teach from the examination point of view in the very least; but his aim was to give an account of the processes of disease as ascertained by

> experimental inquiry: and he illustrated all his statements of fact by experiments on every possible occasion.[1]

On his resignation of the Professorship, his students presented to him a gift of silver, and an album. Dr. Sidney Martin was appointed Professor. Horsley had supported another candidate, who, to his thinking, had not been fairly treated: and over this more or less imaginary grievance he went so far as to wreck one of the best of all his friendships.

Except that he was no longer called Professor, and was freed from the systematic lecturing, his position at University College remained what he had made it: he still had his own room, in which he worked, and to which he attracted men to work under him. Later, when the Medical School was separated from the College, a special 'Department of Experimental Neurology' was instituted for him; but this was hardly more than a convention, to keep him in touch with the School, and in possession of his old room behind the anatomy theatre. One of his colleagues has written of these later years:

> There he was always to be found, on certain afternoons in the week, tackling fresh problems with undiminished ardour, as the pages of Brain testify. None who have ever worked there under his ægis are likely to forget his infectious keenness and his unequalled generosity. All that he asked for was that men who came there should be workers: and they did come, from home, from the colonies, from America, Germany, Poland, France, and elsewhere. It was a matter of indifference to him whether their researches were published with or without his expressed collaboration; all

[1] He spoke of the value of this method of teaching, in his evidence before the second Royal Commission on experiments on animals. He chose, for a good example to give to the Commission, the demonstration on the anæsthetised animal, of an epileptic fit. 'I wish to point out that having lectured on pathology, and having illustrated my lectures by experiments on animals, the necessity of this method has been borne in upon me very closely. As an example I have chosen epilepsy, with convulsions of all kinds, as being a very common form of disease, and yet one which the student has no means of analysing in ordinary hospital work, and very often hardly sees a patient in a fit at all. And yet epilepsy, for instance, can be reproduced experimentally with absolute fidelity by the simple injection into the veins of a drop of essence of absinthe. In twenty-five seconds you have a typical epileptic fit produced, and a student who has once seen it, and watched it develop through the body of the animal, never could forget, and never has forgotten it.'

recognised that he was the leading spirit in the international coterie that laboured in that odd-shaped and out-of-the-way room, which to many of the younger generation of neurologists at home and abroad was a veritable Mecca.[1]

Among the innumerable letters which he kept, there is one, of this year, from Hughlings Jackson, about a case at Queen Square. It brings us back to practice :

I am not clear as to the deafness in the case. Considering the great symmetry of the paralysis, I fear the cord itself is involved. The paralysis is of parts supplied by the 4th lumbar and lower roots. (I got Beevor to see the patient with me, as Beevor is more familiar with the nerve-roots than I am.) The man has great pain, and the operation may relieve this. If you think there is comparatively little risk, I shall be glad if you will explore as you suggest, if the patient consents. The patient has yet to be spoken to.

This letter does not stand alone : there are many other letters, from Hughlings Jackson and from Gowers, about cases at Queen Square ; and something comes to be said of them here. They give the lie direct to the gossip which was talked against Horsley—that he was in a hurry to operate, that he would even operate for the sake of operating, and so forth. This brutal nonsense had not a word of truth in it. Indeed, the only time when Gowers and he had a quarrel, was when Gowers wanted an operation to be done, and Horsley insisted on a longer period of medical treatment. The letters show the careful thought and watching given to the patients. The difficulties of exact diagnosis, and the difficulties of deciding for operation or against it, were even greater than those which arise in general surgery : and the

[1] Mr. Wilfred Trotter writes, in the British Journal of Surgery, October 1916 : ' Year after year, certain hours of the week were regularly set aside for the laboratory, and all who were associated with him soon learned that these hours were to be regarded as the most serious of his engagements and the least liable to be set aside by other calls. When the immense range of other matters in which he was deeply interested is considered, it is possible to get some idea of the strength in him of this master passion for science, and the fortitude of the will which could maintain it against encroachment through more than thirty multitudinously crowded years. Of all that was accomplished in that time no complete record is now, or perhaps ever will be, recoverable. Horsley was always infinitely more interested in the carrying out of his researches than in the record and publication of them.'

proportion of very grave cases was higher than it is in a general hospital. Of course, it takes a doctor to read between the lines of these letters: the references to optic neuritis, and to the look of the optic discs and papillæ, will not mean much to non-medical readers.

The letters from Gowers—only a few are given here—are undated. It is not unlikely that the letters marked 3 and 4 refer to one and the same case.

1. I have a man named Christian in the Hospital, whom I admitted after seeing him for possible operation to-morrow. But further scrutiny shows it cannot be yet. I should like you to see him. Don't let the House-physician say what I think, but form your own opinion. I know you are as ready to change your opinion, if mine comes with more light, as you are to take mine. Remember of this man Christian, Everley Taylor of Scarboro' would come up travelling through the night to see it.

2. There is a man from Prague, whom I almost think you introduced to me, and another from Cleveland, Ohio, who are anxious to see the operation, and that on the syringomyelia case. Is a notice of an operation put up in the hall of the Hospital? Do you object to many spectators on the benches?

3. On the one hand, I don't think the swelling of the discs is greater. I think the neuritis is subsiding. If you put much weight on this, you might get Gunn to examine them again. His second more careful estimate quite confirmed my opinion that the left was the worse. On the other hand, Purves Stewart's case shakes rather my idea of an infiltrating glioma of the pons, and makes me inclined to think that the probabilities are equal between that and a tumour of the right cerebellar hemisphere near the pons —perhaps not far from the seat in Stewart's case. Have you got the reprint I asked him to send you? *Later.* That cerebral tumour case is strange. Never have I seen such rapid subsidence of neuritis. Of course there has been œdema as an element, but I think leucocytes—such as we find in such immense quantities in the swollen papillæ—must have passed away by the lymphatics or vessels. The headache seems getting less, though only slowly. Still, I cannot help thinking improvement in the growth may be occurring. I have seen her brother, and they are willing and indeed grateful to keep her in. I shall be glad to learn your opinion. When you saw the eyes, the condition was very different from that which existed when she came in. But it is an ocular condition that may invalidate conclu-

sions for ordinary cases. But see here; if you had trephined a few days after admission, must I not have felt absolutely certain that a subsidence, more rapid than I had ever seen before, was due to the operation? It is a curious illustration of danger.

4. I may not delay you longer from doing what you think wise about that girl. The pain is too severe: subsidence is not maintained. It is, as to the optic neuritis. Dismiss the eyes entirely from your mind in considering the question. That is all I can say. I am quite perplexed as to the rest, and dare not attempt to advise you. You will understand that I have waited to the last, before saying this. *Later.* I wish I had sooner withdrawn my hindrance. That girl is suffering most agonising pain, and has to be kept under morphia, or she would I think die of pain. The retraction of the head is great when the pain is on, and surely this must show subtentorial disease. Even the nurses are longing for Monday morning. *Later.* I do not remember a case that has grieved me so much. I blame myself for having hindered you, and then for having biased you in favour of subtentorial disease. I should think that if ever a life could have been saved by surgery with the utmost facility, it is this. I wonder if you were influenced by what I said. I suppose you have received my notes. I am revising report of my lecture on the case for the Clinical Journal. It is one in which there is a moral compulsion to be frank, as you will feel.

5. *Probably* tubercular. But no good can be done to sight. Neuritis is now in stage of subsidence: but an amount of damage such as I have never seen. Every nerve-fibre is destroyed, and the huge quantity of inflammatory tissue will maintain the absolute destruction, or rather, would cause it if it were partial in degree. No influence on the condition can possibly lead to any improvement in sight. The operation must be for the pain alone. I was going to lecture on the case on Wednesday, but if you think well to operate to-morrow, I will take another subject. Let it be as you think well. You may like to wait a few days.

1897 (*æt.* 40)

In April, he was invited to give the Cartwright Lectures in New York; but could not accept the invitation. In the summer, he worked in Hamburg for two or three weeks, on the oxidising power of the tissues. In October, he was elected to the General Medical Council. In November, he was appointed on the Senate of the University of London.

He published, this year, (1) Short notes, in Brain, on the presence of true Pacinian bodies in muscles, and on the survival of muscle-spindles even in extreme atrophy of a muscle after section of its motor nerve. (2) A paper at the Medical Society, on traumatic neurasthenia. (3) A clinical lecture at Queen Square, on the diseases of the spinal cord requiring surgical treatment. (4) An address to the South-West London Medical Society, on ' The Medical Acts, as they are and as they ought to be.' (5) Das Sauerstoffbedürfniss des Organismus, Münch. Med. Wochenschrift, No. 19, 1897. (6) Blutbefinde bei der intravitalen Methylenblaumethode, *ibid.*, No. 23, 1897. These last two were in connection with his work in Hamburg.

He also published three papers, one in physiology and two in surgery :

1. ' On the relations between the cerebellar and other centres (namely, cerebral and spinal) with especial reference to the action of antagonistic muscles.' A paper by Dr. Max Loewenthal and Horsley, read at a meeting of the Royal Society, February 25, 1897.
2. ' On torticollis.' The Annual Lecture for 1897 to the Hunterian Society.
3. ' On the treatment of trigeminal neuralgia. Two clinical lectures at Queen Square.

The operative treatment of torticollis (spasmodic wry-neck) will always be associated with his name. He was one of the first surgeons who maintained that all such cases must be treated in strict accordance with the exact distribution of the nerves to all the involved muscles ; and that the division of the nerves, in severe cases, must be done very thoroughly, by an extensive operation, if the patient is to be completely cured. He was not the first of all to work out these facts. Risien Russell had determined them in neurology by the experimental method ; and Gardner of Melbourne and Keen of Philadelphia had devised and performed the new operation. Horsley is careful to reckon himself as their follower. He had in 1897 performed this ' tedious but very satisfactory ' operation in five cases ; ' and certainly with very gratifying results : in only one did I consider that

the result was not good.' Always, he regarded it as one of the most difficult of all operations.

The lectures on trigeminal neuralgia review the whole subject of this disease and its surgical treatment. In 1891, he had in one case divided the trigeminal nerve close to the brain, between the base of the brain and the Gasserian ganglion; but had not seen his way to the complete removal of the ganglion. In 1892, William Rose, by Horsley's help, had devised one method of gaining access to it; and Krause of Altona had devised another, which Horsley greatly preferred to Rose's method. In America, Hartley devised a method very similar to Krause's. Horsley added certain improvements: his operation may therefore be called a 'modified Krause-Hartley operation.' In 1897, he was able to say, 'I have been personally informed by Professor Krause that he has done the operation in thirty cases with but one death. I have myself done it in eight cases, all of which have been healed without an accident. In neither his cases nor in mine has there been any return of pain so far.'

1898 (*æt.* 41)

To this year belong (1) A paper on 'The true interpretation to be placed on the Medical Acts'; published as a supplement to the Clinical Journal, February 9, 1898. (2) A paper in the Medical Magazine, on 'The duties and functions of the General Medical Council.' (3) A lecture on 'Penetrating wounds of the central nervous system'; published in the Clinical Journal. (4) A paper at the Edinburgh meeting of the British Medical Association, on 'The treatment of spinal caries.'

In August, at the meeting in Cambridge of the International Physiological Congress, Beevor and he read a paper, 'On the excitable fibres of the crus cerebri.'

He succeeded Sir George Savage, this year, as President of the Neurological Society; and gave a presidential address, 'A contribution towards the determination of the energy developed by a nerve-centre.' He had advanced the work of the Croonian Lecture a step further. Gotch

and he, in 1888, had studied and measured the electromotive changes which attend a discharge of nerve-energy : but they had not studied or measured nerve-energy itself :

> When we speak of the discharge of nerve-energy from a nerve-centre, it is a little disturbing to find that we know nothing about nerve-energy, except the rate of its transmission along the nerve-fibres, and the circumstances under which it is evolved. It has of course been compared to all forms of physical energy, and Newton himself speaks of a nerve impulse as amounting to a vibratory disturbance of the particles of the nervous system.

To measure nerve-energy, Horsley measured the ' lift ' of a contracting muscle. In this research, he had the assistance of Dr. Veraguth and Dr. Christiansen. He states his results as follows :

> No nerve-centre, by any means that I have employed and described, is capable of evoking as much work from the muscle as excitation of the motor nerve to the muscle produces. The nerve-centres do not cause a complete explosion of the potential contractility of the muscle. Further, the average ' lift ' obtained from the cortex is about three-fifths of that obtained from excitation of the motor nerve.

III

From 1899 to 1906

During the next few years, it was impossible even for him to give much time to the writing of scientific papers. He was hard at work in professional politics; and he was at the zenith of his practice. The lists, in his engagement-books, of consultations in London, and of country journeys, are so long that one can hardly see how he had time at all for science. By 1904, professional politics were less urgent; and the output of his writing came back to full strength.

There is a good instance, in 1899, of the range of his interests; a lecture at the Royal Institution, February 3, on the Roman Defences of South-East Britain. It shows him just as keen for antiquities as for physiology and surgery and politics: with knowledge gained not only from books, but more by observation and by the use of his hands. Lympne, Pevensey, Reculver, Richborough—*Portus Lemanus, Anderida, Regulbium, Rutupis*—their Latin names are almost as familiar to him as their English: he had learned all about the Roman naval squadrons, their officers, and their stations: the one or two coins, and the stamped tiles, and the cobblestone paving which he found at Lympne, all help him to see the place as it was. At the end of the lecture, he describes the ruins of a Roman villa, excavated by Mr. Storry, the curator of the Cardiff Museum:

> On following up the passage, which was the first part of the villa opened into, Mr. Storry found it led into a large room with a good pavement, the tesseræ of which were broken and the surface indented with horses' hoofs. The floor was covered by numerous human skeletons, and those of horses, while in the corner of the room were the skeletons of two children, and across, in front of them, that of a woman.

> Further, in three graves dug in the floor, were found the skeletons of men of a larger and more powerful build than those whose remains were left unburied where they fell. The evidence is circumstantial but complete. The whole story is told. The unfortified dwelling-house, the attack by the stronger invaders, the retreat of the household along the passage to its inmost room, the last stand of the little garrison, the slaughter of the men, the murder of the woman, and last of all the massacre of the children, in front of whom she had thrown herself in a final desperate effort to save them from the inevitable destruction. There are those who find the study of old walls dull, and wonder that some can pore for hours over a jaw from a cave, a flint from a field, or a bit of Roman mortar, but these things are the key to the unwritten history of man, and when we find how vivid a page of history can be restored to us from the floor of a single house, one's wonder should rather be that so much still remains uncared for and unread.

In surgery, this year, he published two papers: (1) On injuries to peripheral nerves. (2) On the rational treatment of goitre. In professional politics, his chief engagements were on June 15, when he spoke at a meeting of medical men in Stratford, and defended Mr. Balfour's Bill for the Registration of Midwives; and on November 22, when he spoke at a meeting of 160 medical men in Newcastle, called to hear him and the other two direct representatives on the General Medical Council.

1900-1901

In 1900, at last, he had wards of his own in University College Hospital. One of his old House-surgeons, Dr. Wirgmans, writes:

> My first intimate association with him was in 1900, when my father broke his thigh, and I asked Horsley to see the case in consultation. Although there was no reason at all why a fee should not have been accepted, it was refused, I will not say with scorn, but as quite an unheard-of idea! I was fortunate enough to be his House-surgeon for six months in 1901-02. I well remember my first day with him in the theatre. He was a firm believer in the constant irrigation of the operation area with hot perchloride solution; and hot the solution had to be. It never quite boiled, but to the H.S. who had to keep it dripping, the difference

was inappreciable! At the end of the day I was more or less soaked. I crept home with an umbrella pressed to my legs, trying to conceal as much bloodstain as possible. Another noticeable thing in his work was the vast quantity of gauze used in the dressing of head-cases. I should not describe him as a great teacher or lecturer, but his example was worth much, particularly to those who were lucky enough to be brought into close contact with him. He had a peculiar gift of inspiring one with confidence in oneself, and trusted his House-surgeon very greatly, which naturally calls out the best service from a man. There was nothing more irritating, or amusing—I hardly know which word to use—than the way in which his anti-vivisectionist opponents described him as a cruel man. I never knew one who was more careful to lessen suffering, and to avoid causing pain. His dressers were soon taught that the dressings had to be soaked till they came away of themselves; or they got a sharp telling-off. To his patients he was kindness itself; and for those who went to him for advice there was always full and careful help in every way possible.

One of his colleagues remembers of him that he was fond of giving to his ward-teaching the appearance of a consultation, in which this or that student would be expected to reason out the points of a case with him. Another writes of the devotion which he gained from his House-surgeons and his students by 'his easy simplicity, his charming sense of fun, his assumption of complete equality.' He had neither time nor inclination for teaching the commonplaces of general surgery; and he usually transferred to his assistant-surgeon cases which offered to himself no opportunity of teaching or of learning. But, 'little as he did of formal teaching, his influence upon the whole surgical tone of his school was profound.'

At Queen Square, in 1900, faults of administration, which had been going on for many years, reached their height. The Hospital Sunday Fund withheld a grant to the Hospital, till things should be better managed: a Committee of Enquiry was appointed, under Sir Edward Fry, and the unhappy dispute was proclaimed far and wide in the newspapers. The Staff were not to blame for these troubles: there never was a Staff more loyal in the service of their Hospital. They had two very serious grievances: they

were not properly represented on the Board of Management, and they were subjected to a sort of nagging espionage ; as if they were the servants not of the Hospital, but of the Board of Management.[1] When one thinks who they were, the notion of any body of non-medical men behaving ungenerously toward them is comical : but the harm done to the Hospital was beginning to be tragical. In these years of conflict, Horsley did his share of the fighting, but not more than his share. The final manifesto of the Staff against the Board of Management is dated August 4, 1900. With the appointment of Mr. Danvers Power as Chairman, everything was gradually changed : he was the saving of the Hospital.

In 1900, Horsley published a clinical lecture on compression-paraplegia : an address at a conference, in Manchester, on ' Medical Organisation ' : and his Lees and Raper Memorial Lecture on the effect of alcohol on the human brain. In 1901, he published, with Dr. Thiele, ' A study of the degenerations observed in the central nervous system in a case of fracture-dislocation of the spine.'

1902-1903

In 1902, he received the honour of knighthood ; to his great astonishment : for the letter offering it was the first intimation of any kind which he had of it, nor did he even know who had recommended him. He and Beevor, this

[1] There was another condition of Horsley's work, which vexed him again and again. He never had beds of his own : all cases must be admitted under the physicians : he could not take charge of any patient except at the request of one of the physicians. Even those patients who were sent to the Hospital for the express purpose of being under his care must be admitted as ' medical cases.' He never got away from this rule. The physicians mostly did their best to make it easy for him. Sir William Gowers, for example, writes to him about a patient, in July, 1896 : ' A case I admit for you I regard as being only nominally under my care, and I have been waiting for an expression of your desire that I should look into this case. . . . You know I entertain the strongest opinion on the injustice of the arrangement by which you have no beds of your own.' The rule ought to have been modified or revoked. It was absurd, that a patient should travel a hundred miles or more to be under Horsley, and then should be under somebody else. Besides, mistakes or misunderstandings were apt to happen, and to be sharply resented not only by him but by the patient's friends, or by the medical man who had sent the patient to the Hospital.

year, published in Brain a minute account of the nerve-fibres passing from the cerebral cortex to the corpora quadrigemina and the optic thalami. In their earlier work, not having the use of Marchi's method, they had failed to trace these fibres.[1] In October, he gave the introductory address of the winter session at University College, Bristol. He also read a paper, at the Bolingbroke Hospital, on the radical cure of hernia: and Risien Russell and he opened a discussion, at the Medical Society of London, on the medical and surgical treatment of epilepsy.

In February, 1903, at a meeting of the Leicester Medical Society, he spoke 'On the consolidation of the public and professional interests of medical men.' He referred to the great increase in the number of medico-ethical societies, and to the reconstruction of the British Medical Association on stronger and wider lines: [2] and he attacked the Council of the College of Surgeons for not doing more for the profession:

> Though in the Middle Ages the Corporate Guilds may have exercised considerable influence, the College of Surgeons only increased its membership with the development of the pro-

---

[1] An admirable account of Marchi's method was given to the second Royal Commission on experiments on animals, November 27, 1907, by Dr. Head. 'The beginning of our present knowledge came with Waller's discovery that a nerve degenerated when separated from its nutritive centre. This law was the direct outcome of experiments on animals, and its application to the brain and spinal cord has been responsible for the greater part of that knowledge we now possess of the structure of the nervous system. When a nerve is separated from its nutritive centre, it becomes gradually functionless; but also it becomes gradually destroyed entirely, so that no nervous matter is left behind. . . . Imagine a wall covered with creepers arising from several stems. If we wished to know from which of these any one branch takes its origin, we could cut one stem, and every branch arising from it would die, marking out among the healthy foliage the offshoots of the divided stem. This is the principle that has been used in tracing the paths in the nervous system. . . . By experiments on animals, a tract or set of tracts can be divided precisely; the animal is kept alive until degeneration has taken place, and is then killed. By suitable means the dead parts can be coloured so as to stand out clearly in the microscopical picture. The method by which these dead structures are made to show up clearly against the healthy parts was discovered by Marchi from experiments on animals. Waller's law and Marchi's method, applied to material obtained from experiments on animals and from disease or injury in man, are responsible for almost all our knowledge of the anatomical paths in the nervous system.'

[2] The medico-ethical societies worked apart, each in its own district. There was talk of making a federation of them: but this plan was set aside by the reconstruction of the British Medical Association.

> fession, and, like all other medical corporate bodies, it has become more interested in preserving its existence than justifying it. The members of its Council, who, though but twenty-four in number, have arrogated to themselves the rights and privileges of their 20,000 colleagues who compose the College, do little more than carry on the administration of the conjoint examinations, and maintain the buildings and museum of the College. They have never publicly moved in support of the interests of the profession as a whole. Neither will they move. In fact it is practically certain that the attitude of the Council of the College of Surgeons will be to oppose the Medical Acts Amendment Bill which we require, because they believe that a real reform will threaten their income.

Surely he overstates his case here; and again, in the address which he gave in October, at the opening of the Birmingham winter session, on 'The purposes and maintenance of our Universities,' when he spoke of 'the sterile training in dead languages and somewhat moribund systems of philosophy unfortunately characteristic of an old University like Oxford,' and dismissed Sir William Anson's views on education as if they were hardly worth considering. But he spoke with good judgment of the maintenance of our Universities; and made a fine appeal for State aid for them.

At the meeting in Swansea of the British Medical Association, he was Chairman of the Meeting of Representatives.

1904 (*æt.* 47)

At Queen Square, in 1904, the Nervous Diseases Research Fund was instituted, for the microscopical, chemical, and bacteriological study of these diseases. Some months later, he received a gift of £1000 for any charitable purpose; and had the pleasure of using it for this Fund. Mr. Danvers Power writes:

> I saw a good deal of him, when I was Chairman of the Hospital under its new constitution, after the dispute between the Staff and the Board, in which he was really the leading spirit. From first to last I found him the exact opposite of what I had expected from his controversial writings.

Having had the good fortune to be the humble instrument of providing him with a proper operating-theatre at the Hospital, and also of setting on foot a little research fund, I can truly say that—whatever it may have been to opponents—his ordinary manner to those who showed any kind of practical sympathy with his work was, as far as my experience went, very gentle and most attractive. He never forgot to back support from laymen by his own exertions, and always showed warm gratitude for it. I never knew him make an unreasonable request.

As you know, he had extreme views on some subjects, and they occasionally brought him public rebuffs. I remember his once saying to me, when he was suffering from one of these, 'What they don't see is that my object is the health of the country.' I wish every one could say as much.

In March, he gave evidence before the Committee on Physical Deterioration. He so feared and hated this national evil, that he must have longed to speak of every aspect of it; but he was limited to one subject, the venereal diseases, their effect on the national health, and the measures to be taken against them. The first thing to be done, he said, was to appoint a Commission to enquire into their prevalence. Statistics founded on Hospital practice were useless. So were statistics founded on death-certificates:

At the present moment, when a medical man gives a certificate of the cause of death, he is writing a document which is for the information of the family, but it is a document which is indirectly to be the scientific basis of statistics for the nation. These two things are really quite apart: you cannot combine them. Therefore it comes to this, that any document certifying the cause of death ought to be a scientific document, a Government document, what we may call a State paper and a privileged paper, to be given to the Government official, the Registrar-General: and the contents of that document should only be communicated to the friends or relatives of the patient at the Registrar-General's discretion.

He was in favour of compulsory notification: but he saw the difficulties in the way of it. He was asked whether he thought that any serious penalty ought to be imposed on a man who knowingly caused infection; and he answered:

I think that, as the ordinary outcome of a Notification Act, it would be possible to have a statutory penalty on

persons of both sexes. I do not think it ought to be limited only to the male sex, but I think certainly there ought to be a penalty, so soon as the thing is put upon the ordinary basis of an infectious disease.

The Committee, in their Report, July 1904, recommended that a death-certificate 'should be regarded as confidential, and its contents should never be divulged by the Registrar, as is permissible at present, to the friends of the deceased. It should be sent by the local Registrar direct to the Registrar General.' They also recommended the appointment of a Commission of Enquiry into the prevalence and effects of syphilis, having special regard to the question of the possibility of making the disease notifiable, and to the adequacy of Hospital accommodation for its treatment.

At the Oxford meeting of the British Medical Association, he opened a discussion on chloroform-anæsthesia. This discussion was the chief event of the meeting. It was three years since the Association, by Dr. Waller's advice, had appointed a Committee to study chloroform through and through. Waller, Sherrington, Vernon Harcourt, Dudley Buxton, Horsley, and others had been working at it from all points of view; in physics and chemistry and pathology and physiology and practice. They had just issued their third report; they had corrected or re-stated the results obtained by the Hyderabad Commission. Chloroform is one of those drugs which will never let the last word be said about them.

They had proved that rather less than two per cent. of chloroform-vapour in air is sufficient to induce anæsthesia, and that much less than two per cent. is sufficient to maintain it during an operation. The question was, Ought the anæsthetist to use a special apparatus exactly registering the percentage of vapour, and enabling him exactly to control and adjust it during the operation? Or ought he to use the simplest of all methods, sprinkling the drug on a fold of lint, relying on his own experience and watchfulness, without having to attend to any sort of apparatus? The debate at Oxford was followed by debates at the Society of Anæsthetists and at the Royal Medical and Chirurgical Society. Mr.

Vernon Harcourt, and Dr. Alfred Levy, had invented two forms of apparatus; with either of them the anæsthetist could exactly tell what dose he was giving at any moment: but the art of giving anæsthetics is so 'personal,' so closely dependent on the individuality of the anæsthetist, that opinions were divided, whether science could rightly dictate to practice. Horsley was quite sure that the percentage ought to be exactly controlled. He always liked to have the Vernon-Harcourt inhaler used for his operations. He especially valued it in cases of brain-surgery with increase of intra-cranial pressure: this pressure might of itself cause sudden death, or might make fatal a percentage which otherwise would be absolutely safe. But he also used the inhaler in operations of general surgery.

He gave an address, this year, to the Wimbledon Medical Society, 'On tactile sensation.' It is concerned with the question, How is the study of tactile sensation useful as a guide for the localising of a disease or injury of the brain? He begins with an account of the work done on this subject by Head and Mott; he agrees with them, that the sensory channels terminate in the centres of the optic thalamus, and that new channels start from the optic thalamus to the cortex:

> Under these circumstances, we naturally expect that the representation of sensation in the cortex must be something very special; and I venture to submit to you that it is, and that by a determination of this character we can form an exact diagnosis of the lesion, as to whether it is in the cortex cerebri or in the region below the optic thalamus.

He points out that the motor area of the cortex does receive sensory fibres; and so he comes to the question, What special sort of insensitiveness is evidence of injury or disease involving the cortex? And he answers, that the cortex enables us not only to be conscious of a touch, but to identify the point touched:

> I have urged again and again, and perhaps it may be known to some—but I would like to repeat it—that in our clinical investigation of cases of anæsthesia it is not sufficient for us simply to touch a patient and say 'Do you feel

> that ? ' and so on, because if he has any tactile sensation at all he will say ' Yes ' quite correctly ; but the part to be tested should be screened from the patient (it is much better than blindfolding him) and the part should be touched very lightly, and he should then be compelled to mark with his own index-finger the part which you have touched. If you do that, you may discover, often to your surprise, that he has entirely lost his knowledge of the exact spot which was irritated. Under these circumstances you are at once furnished with a differential diagnosis : you know perfectly well that the lesion cannot be anywhere below the optic thalamus, and you know it must be somewhere in the region of the cortex.

At the Oxford meeting, he had invited Dr. MacNalty, who was working with Dr. Gustav Mann on the structure of the optic thalamus, to come and work in London. From 1904 to 1909, Dr. MacNalty assisted him in his researches at University College and at home ; and writes of these years :

> He began his day at 7 A.M., breakfasted at 7.30, often earlier, and was usually operating soon after 8. From then, work went on almost uninterruptedly until 11 P.M. When I first knew him (1904) he was surgeon both to University College Hospital and to Queen Square ; he had a large private practice ; he was on the General Medical Council, and busy with affairs of the British Medical Association ; and he was daily engaged in cerebral research, either in his private laboratory behind the anatomical theatre of University College, or at his own house.[1] He was constantly in demand,

[1] Of course, he was forbidden, by the Act, to make experiments on animals at his own house : they must be made only in places registered under the Act. Once, in 1893, he had leave to make two inoculation-experiments at a private house ; but he did not, after all, make them. See his evidence before the second Royal Commission : ' These experiments were the inoculation of blood from a patient suffering from filaria sanguinis hominis. This is a peculiar worm which discharges its embryos into the blood of a patient at night-time. The embryos do not come into the blood till about ten o'clock at night, and they flourish in the blood when the patient is lying half unconscious or unconscious in sleep ; and when he wakes in the morning, and begins to move about, these embryos disappear again : hence, the only time you can get the living embryos is in the night, so that it is necessary to do this inoculation in the night-time. All the laboratories are closed at night ; and Sir Patrick Manson, for whom I was going to do the inoculation, brought the patient to a private house for me to do it. As a matter of fact, we examined the patient's blood, and we found that he had no embryos in his blood, or hardly any ; the reason being, that he had injured the lymph-glands in which the parent worm was living : which had caused inflammation and had caused the death of the parent worm. And there was an end of the experiment : and there was an end of the whole matter, because I have never done any experiment in any unregistered place at any time in my life before or since.' (Minutes of Evidence, vol. iv. p. 128, November 13, 1907.)

also, for political addresses, lectures at medical societies, etc. He never neglected any detail of his work. I have often been working with him in the evening, when he has looked at his watch, pushed a tray of sections over to me, and announced that he had some cases to dress. I think he often strained his amazing powers to the utmost. Sometimes, after a long day, a very weary look would come over his face, and he would say that he must sleep for a little while; and he would fall asleep for five or ten minutes and then wake up refreshed and ready to continue work.

Neurologists from all over the world would attend to watch him at his experimental work, and any keen resident at U.C.H. or Queen Square was certain of an invitation to the laboratory. As far as possible, he set aside Thursday afternoons and Saturday mornings for experimental work. The same scrupulous precautions were observed in experiments as in a surgical operation. He always dressed and bandaged the wounds himself, and looked very carefully after the well-being of the animals. He was very fond of animals, and would caress and play with the monkeys and feed them with bananas. Apart from his stated hours, he would appear in the laboratory at odd moments, often in the early morning, and cut sections for about half an hour. I think the mere mechanical work of using the microtome rested him. At such times he would talk to one on all sorts of subjects and at intervals would whistle tunes out of the Gilbert and Sullivan operas.

He only gave up his private laboratory within a year or two of the outbreak of the War. His amount of scientific output in those precious hours snatched from other work would have amply sufficed for the whole time of many a professor of physiology. He had the gift of mental concentration in no small degree. Like Arnold of Rugby, he could work with his family round him.

1905

This year, R. H. Clarke and Horsley published their paper 'On the intrinsic fibres of the cerebellum, its nuclei, and its efferent tracts.' They had set themselves to answer the questions, How is the cortex of the cerebellum linked up from point to point of its surface? How is it linked up to the underlying cerebellar nuclei? Is there a direct efferent tract from the cerebellum to the spinal cord? (That is to say, Do the peduncles, the great bundles of nerve-

fibres between the brain and the cord, contain any fibres coming direct from the cerebellum ?) If such a tract does exist, is it derived from the cerebellar cortex ? Or is it derived from the cerebellar nuclei ? And, if so, from which nuclei ?

They made altogether twenty-three experiments, using Marchi's method. In their paper, they review the work of other writers on the subject, from 1891 to 1905 ; and are in agreement with Ferrier, Aldren Turner, and Risien Russell. They give an elaborate description of the naked-eye anatomy of the cerebellum, its divisions and subdivisions : here they mostly adopt the nomenclature devised by Elliot Smith. Finally, they point out that the temporal region of the cortex cerebri is closely associated with the cerebellum ; it is concerned with the sense of hearing ; it may therefore be concerned with that sense of equilibrium which is controlled by a portion of the auditory nerve ; and here may be a clue to the disturbances of equilibrium which attend injury or disease of the cerebellum.

They sum up the microscopic structure of the cerebellum as follows :

> All the specimens show abundant arcuate fibres connecting various parts of the cortex, and other fibres passing to the nearest cerebellar nuclei ; but none going directly from the cortex cerebelli to any of the peduncles. Our series of sections also show that all efferent cerebellar cortical fibres, in the first instance, pass to one or other of the central nuclei, and principally to the one which is nearest to their origin.

Another paper in Brain this year, by Horsley, is of a very different kind, on a chance observation made in the course of his work : he had found a ' trigeminal-aural reflex in the rabbit,' *i.e.* a reflex movement of the rabbit's ear, following stimulation of the trigeminal nerve. The setting up of the ears, as he says, ' has always been regarded as voluntary—a high purposive act on the part of the animal to detect a source of danger.' But he found that if he gently touched the skin or the long hairs, in the infra-orbital region, which is supplied by the trigeminal nerve, the ear on that side

was raised and carried forward : it remained thus for some seconds, and then slowly dropped :

> Pricking of the ears being undoubtedly associated with an appreciation of danger, it is reasonable that it should occur when the infra-orbital region, and especially the vibrissæ, are touched ; since a rabbit in escaping from danger encounters numerous obstacles as it runs in the depths of the burrow, or through bushes and grass in the dark, and therefore must largely rely on contact-impressions from its face.

From this chance observation in natural history, which would have delighted Mr. Darwin, he goes on to speak of his experiments—especially those which he had made in 1904 with Magnus of Christiania—on the representation, in the corpora quadrigemina, of this listening-movement of the ears ; a movement altogether different from the setting back of the ears, for protection in fighting, which 'can be obtained from a wide area of the cortex cerebri in all animals, notably the ungulata.' The representation, in the corpora quadrigemina, of the listening-movement, was first observed by Ferrier, long before 1904 : Horsley now couples it with the fact that the sense of hearing, likewise, is represented there.

In 1905, also, he gave the Boyle Lecture, in Oxford, to the Junior Scientific Society of the University : 'The Cerebellum, its relation to spatial orientation and to locomotion.'

1906

This year seems to mark the end of a period ; not only by the work which he did, but by the work which he resigned. It was the fiftieth year of his life. He gave up his appointment at University College Hospital, and his Professorship of Surgery at University College. His second term of office on the General Medical Council came to an end ; and he did not seek re-election. He completed twenty years at Queen Square ; and, in his Toronto address on brain-surgery, he summed up what he had learned in all that time.

It has been said of him, that he would have done far more for science, if only he had kept clear of politics. There is very little truth in that saying. His chief discoveries in physiology and in surgery were made early, in the wonderful years between 1884 and 1900, when politics had not much hold on him. Besides, the output of his work for science, now more now less, never stopped: it went on right up to the time of the War.

He certainly did enough, in 1906, both for science and for practice, to satisfy the greediest of his critics.

In February, in Sheffield, he gave an address, 'On the diagnosis and surgical treatment of diseases of the pituitary gland.' It was thirty years since he had made, at the Brown Institution, the first experiments ever made on the removal of the gland. By 1906, he had operated on nine patients, of whom two had died: but in neither case was the operation the only cause of death. The whole subject is too new, and too abstruse, to be considered here: it is very fully considered in Harvey Cushing's classical book, The Pituitary Body and its Disorders (Lippincott, Philadelphia, 1912).

He gave the Hughlings Jackson Lecture, this year, to the Neurological Society, 'On the physiological relations between the cerebrum, the cerebellum, and the spinal cord.' It was the fiftieth year of Hughlings Jackson's practice: a good occasion to thank and praise him:

> His teaching of first principles will always be gratefully remembered by the ever-increasing army of neurologists; but this is the opportunity for those of us who have enjoyed the inestimable privilege of being immediately his pupils, specifically to recall the profound depth of our indebtedness to him. . . .
>
> The greatest principle, which underlies all he has written, is the true nature of localisation of function in the central nervous system: namely, that it is relative and not absolute; that conceivably every part of the body is represented in every nerve-centre, just as it of necessity is in the single primordial ovum: and that when the nervous system, considered functionally, is regarded, in the view of Flourens, as working as a whole, the determination of action by any given part is never more than relative. . . . When we are

labouring with the difficulties of endeavouring to establish a differential diagnosis, we are likely to forget that the whole machine is in active operation while our attention may be drawn to one point only.

He published three papers, this year, in Brain: (1) On the tænia pontis. (2) On the orientation of points in space. (3) On apparent re-representation, in the cerebral cortex, of the type of sensory representation as it exists in the spinal cord.

1. The tænia pontis is a small tract of nerve-fibres along the anterior border of the pons Varolii. It is seldom symmetrical: and it may be either superficial, or embedded in the pons. The lower the type of brain, the more probability that the tænia will be superficial. He studied it in three types of brain—the hippopotamus, the camel, and man. Up to 1906, it had been regarded as a tract of efferent fibres, passing from the cerebellum to the pons. By a single experiment (Marchi's method) he proved that the fibres are afferent; that they pass from nuclei in the pons to nuclei in the cerebellum.

2. The orientation of points in space was worked out with the help of Dr. Townley Slinger. The observations were made some in London, some in Cambridge with the help of Dr. Rivers, and some at the South Norwood College for the Blind. Horsley had devised a glass plate ruled in squares of half a centimetre; it could be set at any plane, and screened from sight. The person tested had to keep a finger of one hand on the under surface of the plate, and to try to touch with a finger of the other hand the corresponding point on the upper surface of the plate. This and similar tests were especially useful for the study of disease of the cerebellum. They gave the exact measure of those faculties which we exercise in the game of pinning, blindfold, a paper tail to a paper donkey: we are guided, in that orientation, by the 'feel' of our joints and muscles. The results of this very long series of observations were as follows:

1. The faculty of orientation in space, as determined by the muscular and arthrodial sense, progressively diminishes

from the surface of the body outwards to the limits of the arm extended in any direction.

2. Orientation-knowledge increases in passing from point to point in the space around the body, beginning above the head, coming down to the front of the body, and gradually approaching the centre of gravity of the whole body.

3. Orientation-knowledge also increases in passing from point to point in the space around the body, beginning laterally, *e.g.* in the plane of the shoulder, and approaching the mesial sagittal plane of the body.

3. The third paper was written with Dr. Colin K. Russel ; and was issued from the Neurological Department of Queen Square. Like Horsley's paper in 1904 on tactile sensation, it is concerned with our ability to identify the exact position of a touch on the skin. The ill-sounding name of topognosis, *i.e.* knowledge of position, had been given to this ability. It had long been of interest to physiologists : Horsley, so far back as 1885-86, had observed that it may be impaired by injury or disease of the cortex. But there are two ways of estimating topognosis : and Horsley and Colin Russel now called attention to that way which up to 1906 had been overlooked. Take, for example, the upper limb. We may regard it as made up of segmental groups of muscles, from end to end of its length : or we may regard it, by analogy with the fore-limb of a quadruped animal, as made up of pre-axial and post-axial groups of muscles, from front to back.

In the spinal cord, the representation of the sense of touch in the upper limb is arranged according to the axis of the limb, not according to its segments. That is to say, the distinction between the pre-axial and the post-axial groups of muscles is maintained in the arrangement of the nerve-fibres of the cervical portion of the cord. This fact had been known for some years : but nothing was known about the re-representation of this distinction at any higher level.

In 1894, in a patient with disease of the brain, affecting the area of the middle cerebral artery, Horsley found ' marked dissociation between the pre-axial and post-axial reaction to light touches. The patient, who was a highly-trained

scientific observer, had himself previously recognised a certain sense of loss of relative knowledge of the sides of the fore-limb.' That is to say, there was impairment not only of his ability to judge at what point of the length of the limb he was touched, but also of his ability to judge whether he was touched on the pre-axial or on the post-axial aspect of the limb.

With this case to guide them, Horsley and Colin Russel examined a series of cases of disease of the brain, at Queen Square and in private practice. In all of them, there was 'a topognostic error of response to light touches: in two directions at right angles to each other.' There was not only a 'segmental error,' there was also a 'post-axial or pre-axial error.' So the conclusion is reached, that what 'may properly be termed the mid-axial line and region of the hand and fore-arm' are represented in the cord, and re-represented in the brain.

In July, the Horsleys, with their children, went to Toronto for the meeting of the British Medical Association. The University conferred on him the degree of a Doctor of Law. On August 22, he gave the Address in Surgery. At a meeting of the Section of Physiology, he gave an account of his most recent work with R. H. Clarke. At a luncheon of the Ontario Branch of the Dominion Temperance Alliance, he and Sims Woodhead spoke to an audience of 500. At the festival dinner of the Association, a speech was loudly demanded from him; and he spoke, on the impulse of 'what was uppermost in his mind at the moment,' of the need, in the old country, to raise the wage-earning capacity of his profession. 'It was a question of improving the conditions of each one. Not only that: it meant that the occurrence of misfortune to the members of the great army of medical men might be prevented.'

The Address in Surgery is one of his most important writings. It was just twenty years since he had shown, at the Brighton meeting, his first three patients. He now reviewed the whole field of brain-surgery; with special reference to his own cases of cerebral tumour at Queen Square. He spoke of the want of definite agreement over

the question, How long ought such cases to be under medical treatment, before consulting a surgeon? At Queen Square, the period tended to be about three months. 'This view of the situation, unfortunately, has not yet been discussed in the profession. Even in the present year, I have been asked to operate on a patient with a lateral tumour of the cerebellum who had been known to have optic neuritis for nine years, and last year I did operate on such a patient who had been known to have optic neuritis for thirteen years.' Next, he spoke of the very great value of decompression for the arrest or improvement of optic neuritis: that was the fact on which he was always insisting, that the intra-cranial pressure can be relieved, in cases where nothing more can be done: and at this meeting he showed such lantern-photographs of optic neuritis as might well be called sensational. Next, the general principles of brain-surgery, and the details of operating—'Virtually, it will be found that the fundamental purpose of every detail is the prevention of shock and the maintenance of the physiological integrity of the nervous system.' For the prevention of shock, it was necessary that the anæsthetic should be rightly given. His experiments in 1883-85 had taught him the disadvantages of ether-anæsthesia. For his earlier operations, he had combined morphia with chloroform: later, he had used chloroform only. The percentage of the vapour ought to be exactly controlled: between 2·0 and 0·5 per cent., according to the sensitiveness of the parts. For the treatment of the brain itself, less than 0·5 sufficed: the anæsthetic might even be shut off altogether for some minutes. A cylinder of oxygen was adjusted to the inhaler, that venous congestion and capillary bleeding might be checked, at any moment of the operation, by giving oxygen instead of chloroform.

Finally—after speaking of each step in operating, and of the variable risk of shock, and of the low resistance of the central nervous system against wound-infection—he came to cases of cerebral tumour of a malignant nature (glioma, glio-sarcoma). He analysed fifty-five cases, of which he had the complete history up to 1906, and said that the outlook, in all such cases, was bad. He hoped that



THE OPERATING THEATRE, QUEEN SQUARE, 1906.

This photograph was taken for Horsley's address in Toronto, to show the Vernon-Harcourt inhaler in use. Mr. Powell is giving the anæsthetic. To the right is Kocher of Berne. Horsley's apparent bulk is due to the fact that he was to be operated on, next morning, for removal of the appendix, and was wearing a large antiseptic dressing to sterilise the skin.

better surgical results would be attained with earlier diagnosis. He found some slight hope, also, in the bare possibility of retrogressive change in the growth, in this or that case.

In December of this eventful year, he gave an address, in Sheffield, 'On the necessity of union in the medical profession.'

IV

From 1907 to August 1914

1907-1908

At the festival dinner in aid of Queen Square, March 11, 1907, he proposed ' Success to the Nervous Diseases Research Fund,' and described the work that was being done by Dr. Farquhar Buzzard on the bacteriology of diseases of the nervous system, and by Dr. Gordon Holmes on their microscopic pathology. He spoke lightly and happily : he made better after-dinner speeches on water than most of us make on wine.

In November 1907, he gave evidence, over two days, before the second Royal Commission on experiments on animals. He was closely examined as to a series of experiments on surgical shock, which had been made, with his help, by Dr. Crile, Professor of Surgery in Cleveland University, lately on active service with the American Army. The experiments had been severe : they were made, of course, on animals under an anæsthetic and killed before recovering from the anæsthetic : and the question had been raised, whether any of the animals had been capable of feeling pain.[1] But the whole of Horsley's evidence, all thirty-one pages, is well worth reading. One part of it is of especial interest ; he argued against that clause of the Act which says ' The experiment shall not be performed for the purpose of attaining manual skill ' (Act 39 & 40 Vic., c. 77, ss. 3, 6).

[1] Final assurance on this point was given in the House of Commons, at the time of publication of the Report of the Commission, by Lord Lambourne, one of the Commissioners. He had no bias in favour of experiments on animals : indeed, at the time when the Commission was appointed, he belonged to one of the anti-vivisection societies. He stated that the Commissioners, after carefully searching through the whole question, believed that the animals used in these experiments were absolutely senseless and without pain (Parliamentary Debates, xxxv. 20, p. 1045).

He described the use made of this method at the Johns Hopkins Hospital: and he divided his argument under three heads:

1. *The need of teaching students how to operate.*—'The Commission are well aware that at the present moment the only practical teaching in surgery that a student receives, except by what amounts to his experiments on human beings, is from operations on a dead body. . . . The texture, and the method of dealing with the live tissue, is quite different from that in dealing with the dead tissue; and from the ethical point of view it seems to me that it is not moral for students to gain their knowledge on man when they can perfectly well gain it on an anæsthetised lower animal. In that sense, I would bring the use of animals for education in surgery on to exactly the same level as the use of animals for food. What is justifiable for the one is justifiable for the other.

2. *The need of teaching students how to give anæsthetics.*—'I wish to draw the attention of the Commissioners to the fact that the risk of death from anæsthesia has always been justly looked upon as a great reproach; and I wish to express my personal opinion that it is purely a matter of knowledge of the dose required, and that, as regards the education of students in anæsthetising patients, no one ought to be allowed to render a human being unconscious before he has had practice on animals.'

3. *The working out of new methods in surgery.*—'I shall show directly that many of the operations which are performed now are based entirely on experiments on animals: but I would like to point out that from the ethical and moral point of view, it seems to me that this is an absolutely essential procedure, which ought to be adopted before any new operation is carried out; for the reason, that if a new operation upon an organ or tissue of the body is performed, no one can foretell what will be the immediate consequences to the animal as a whole. . . . The thing is either moral or immoral; and I venture to suggest that any new operation, any new operative method or procedure, ought to be tried on an animal before it is tried on man.'

The Act is more than forty years old: it was drafted when things were very different from what they are now: and the Commissioners ought to have recommended some modification of this clause.

Other events of 1907 were his election to the Russian

Surgical Society; and the publication of the book by him and Dr. Mary Sturge, Alcohol and the Human Body.

In February, 1908, he writes to Sir Edward Schäfer about the founding of the Research Defence Society:

> I quite agree with you about the Research Defence Society. It must have local branches, and these must consist of as many non-medical and non-scientific people as possible. I will not have anything to do with it if it is going to be another case of taxing the profession for maintaining a thing the social benefit and profit of which accrues to the public and not to the profession.

On March 12, 1908, at a meeting of the Royal Society, his paper was read, 'Description of the Brain of Mr. Charles Babbage, F.R.S.' This relic of the great mathematician, the inventor of the calculating engine, had been for thirty-six years in the Museum of the Royal College of Surgeons: and the Council of the College, in 1906, had asked Horsley to report on it. This long and elaborate report was one of the very first contributions toward the foundation of a true 'phrenology'—a good Greek word which has been so debased that men of science dare not use it, though it is just what they want. But there was nothing very remarkable in this particular brain: except that it bore witness 'as to the neurological value of symmetry as a feature of cerebral growth in an individual of high intellectual ability; and as to the relative development of the areas of representation of locutory and graphic functions in contrast to sensorial representation.' This does not take us far: none the less, this, and this alone, is true phrenology.[1]

At the Oxford Ophthalmological Congress, in July, he spoke on optic neuritis: and again, at a meeting of the Ophthalmological Society in London. He had a strong conviction that in cases of cerebral tumour the optic neuritis

[1] Spitzka, about the same time, published his 'Study of the brains of six eminent scientists and scholars' (Trans. Amer. Philosoph. Soc., Philadelphia, 1907, p. 175). It is to be noted that Horsley, in his will, left his skull and his brain to the Neurological Society. The rest of his body he left for the preparation of anatomical specimens for the museum of University College.

is usually more marked in the eye which is on the same side as the disease, and that it usually shows itself first in a special part of the retina. He published two papers, this year, in Brain: one, a 'Note on the existence of Reissner's fibre in higher vertebrates': the other, with R. H. Clarke, 'The structure and functions of the cerebellum examined by a new method.'

1. Reissner's fibre had been described, by Sargent of Harvard and others, in the central nervous system of those lower vertebrates in which it is most developed, especially in the frog and the fish: but it had not been observed in any creature so high as the monkey. Horsley therefore went through his great collection of microscope-sections of the brains of monkeys, and found three slides which showed it. From the physical peculiarities of this curious solitary microscopic fibre, and especially from its resistance to the ordinary conditions of degeneration of nerve-fibres, he was disposed to regard it not as an integral part of the nervous system, but as a vestige of a skeletal structure.

2. The paper with R. H. Clarke, eighty pages long, is a description of method only, not of results. In 1905, they had not needed to differentiate lesions of the cerebellar nuclei from lesions of the cerebellar cortex: and the problem was still before them, to produce a lesion exactly limited to this or that nucleus, without doing violence to the overlying cortex. They required, to begin with, a complete series of sections of cerebella, 2 mm. thick, cut in three planes, sagittal, frontal, and horizontal: these were to serve as charts or indicators. The special microtome for this purpose was devised by R. H. Clarke: who also devised a stereotaxic apparatus, probably the most complex of all the mathematical instruments of physiology, for the exact directing of an insulated electrolytic needle by graduated movements in three planes. Thus moving by hairsbreadths, and on planes exactly determined, they were able to produce a minimal electrolytic lesion of a cerebellar nucleus, without involving the cerebellar cortex. This was the first use of electrolysis in experimental physiology.

Among the workers in Horsley's laboratory during 1907-08

was Dr. Ernest Sachs, of the University of St. Louis: who writes:

> I had the rare privilege of working with him from September 1907 to December 1908. Though I was a total stranger to him, he took me into his laboratory, and had me, at times almost daily, in his home in Cavendish Square.
>
> I recall incidents which have always seemed to me typical of his character. On a certain Sunday—we always made rounds in the National Hospital on Sunday morning, and he would pick me up in his machine on his way to the Hospital —as I entered the car he said, 'You have heard the news? The walrus died.' I had not heard it, and wondered why he was so enthusiastic over it, but his next sentence explained it. It was the first walrus that had been autopsied in London for many years. He was to do a Gasserian ganglion the following morning, and the autopsy of the walrus had been set for 9 o'clock at the Zoological Gardens. He asked me to breakfast with him at about 6, and then went to the nursing home and did the ganglion in his masterly way, dressed rapidly, and dashed downstairs to get to the Zoological Gardens in time. As we entered the machine, I asked whether the autopsy would not interfere seriously with his consultations for the morning: and he said, 'If people want me to continue to improve myself, they must wait.' As soon as we reached the Gardens, he dashed over to the appointed place and—though there was snow on the ground—in his shirt-sleeves took out the brain of the walrus, and returned to attend to his daily routine.
>
> Another incident, that I always felt was typical of his industry, was at Christmas 1907. A number of us were spending the Christmas week with him, and were busy every day with shooting, walking, or golf, in all of which undertakings he was the leader: and then when the rest of us sat round at tea in the afternoon, he would be examining microscopic sections, and joining in the conversation that was going on.
>
> One incident more seems to be characteristic. When I presented to him a manuscript of a piece of work that I had been doing in his laboratory, I naturally had put his name as well as mine at the top of the article. He quietly crossed his name out, saying, 'You have done most of this work; and as long as people have the habit of giving credit for a piece of work to the one whose name is better known, I won't let my name appear.'
>
> Of the many privileges that I have had in my life, working with various big men, that year and a quarter I spent with him I prize as the most valuable and delightful I ever

had. I went to him in order to take up neurological surgery, and ever since my return to this country I have devoted myself to that work.

1909 (*æt.* 52)

Lesser events of the year: (1) On February 16, at a meeting of the Medico-Legal Society, Mr. Bernard Shaw gave an address on 'The Socialist criticism of the medical profession': and Sir T. Clifford Allbutt and Horsley spoke in the discussion. (2) On March 6, at the Royal Society of Medicine, Horsley took part in a discussion on vertigo. (3) On October 20, he distributed the prizes at the London School of Dental Surgery. The Government Committee on Anæsthesia had lately been appointed, and the Anæsthetics Bill was under consideration: and he spoke of the improved teaching of anæsthetics to dental students. (4) On November 13, at University College, Cardiff, he gave an address on 'Housing and Alcoholism.'

In Brain, this year, he and Dr. MacNalty published their paper on the cerebellum. They had thoroughly studied, by the experimental method, (*a*) the tracts of nerve-fibres passing from the cervical spinal cord to the cerebellum, (*b*) the relation of the cerebellum to the nerves of the forelimb, (*c*) the co-ordinating action of the cerebellar cortex. They state their conclusions as follows:

> Each part of the spinal cord must, practically speaking, be represented in every unit of the cortex to which the fibres run. From the point of view of afferent function, there cannot be said to exist any evidence of differentiation of the cerebellar cortex into localised receiving stations for the impressions which ascend from the arm, trunk, or leg muscles, joints, etc., respectively. It would appear, therefore, that the cerebellar cortex is a structure in which these muscular-sense impressions are associated together, or—to use a more frequently employed expression—co-ordinated.

On February 27, at Queen Square, Horsley gave the most notable of all his clinical lectures: 'On chronic spinal meningitis.' He had operated—it is a remarkable instance of the amount of his practice in the surgery of the nervous system—on no less than twenty-one cases of this rare

disease, opening the sheath of the cord, and irrigating it with a mercurial lotion; and this without a death. One patient had died of heart disease, six weeks after the healing of the operation-wound.

On June 25, at a meeting of the West London Medico-Chirurgical Society, he gave the Cavendish Lecture. He spoke of the relation of the cerebellum to such movements as walking and balancing; of the influence of the reflex system over all such movements, and of Sherrington's invaluable work on this subject; and of the cross-movements of the arms and the legs in walking—'we are not single animals: we are really two individuals joined together in the middle line.' Then, speaking of the association between the cerebellum and the vestibular part of the internal ear, he described two cases of birds, a hen and a homing pigeon, which had suffered from unilateral disease of the internal ear. In each case, the bird displayed the so-called cerebellar attitude of the head—'it should be spoken of as the vestibular attitude.' The keen interest which he took in these birds is shown by the many notes and photographs which he made of them.[1]

In July, at the Belfast meeting of the British Medical Association, he gave an address on optic neuritis. He resolutely defended the position which he had taken, the year before, in Oxford and London: and he backed his clinical evidences with a great series of photographs.

On November 22, at a meeting of the Medical Society of London, he spoke of the operative treatment of trigeminal neuralgia. He had at this time done 149 operations for the removal of the Gasserian ganglion. The mortality had been seven per cent. But this applies only to patients over fifty years of age: he had not lost any patient under fifty. The chief risk of the operation was from arterio-sclerosis, which is common among those who suffer from trigeminal neuralgia.

But the best of his many lectures and addresses of this

[1] Notes and a sketch have come to hand of a similar case, a cock, which he saw and studied, in 1885, at the Brown Institution: doubtless the first observations ever made on this condition in poultry.

year was the Linacre Lecture, which he gave before the Master and Fellows of St. John's College, Cambridge. It is perhaps the most 'philosophical' of all his writings: and, from the fine style in which he had it published, he seems to have been justly proud of it. He took once more, for his subject, 'The function of the so-called motor area of the brain'; and spoke as it were the epilogue to his work in this field of physiology: spoke it with authority, and with faultless dignity. It was twenty-three years since he had submitted to the Neurological Society, in December 1886, his theory that the more superficial cells of the motor area were 'probably sensory,' and the deeper cells were 'probably motor.' He had made this suggestion, as he now says, 'on somewhat slender grounds': but the work of Mott, Ramon y Cajal, and others, had shown the truth of it. But so many thousands of observations had been accumulated, since 1886, by workers in science and practice in all civilised countries, that he felt the need of getting back to first principles. Besides, he was addressing an audience of learned men, but not of physiologists. So he starts from the primary fact that 'there is no such thing as a purely motor centre in the cortex cerebri':

> The true method of regarding the anatomical construction of the cortex cerebri should begin by accepting the principle first enunciated, by Hughlings Jackson, from the consideration of the nervous system from the evolutionary standpoint—namely, that every centre in the nervous system must be sensori-motor. Such a thing as a pure motor centre could not exist; since it would be unfurnished with the causative sensory mechanism essential to the occurrence and production of the motor or efferent impulse; and, in fact, a muscular action would be an effect without a cause—an absurdity which indeed the old idea of psychic spontaneity of action involved.

That is to say, at every level of the central nervous system, incoming impulses are stored and 'memorised' and made antecedent to outgoing impulses. He takes only one level, the highest, and one area at that level: he takes the cortical representation of the movements of the upper limb—'which part of the body, including as it does some of the most highly trained combinations of sensation, is specially

worthy of study.' He describes the work recently done on this area : he acknowledges that one of the conclusions from his work with Beevor has been corrected by Sherrington and Grünbaum : but this problem of physiology—as to the excitability or non-excitability of the post-central gyrus—does not annul the fact that the whole arm area, from the point of view of surgery, is limited to the pre-central gyrus. So he comes to the final question, What are the powers embodied in the pre-central gyrus ? What sensory impulses are accumulated in it, rendering it serviceable to the movements of the upper limb ? He answers this question with a case at Queen Square. The patient was a boy of fourteen, afflicted with violent convulsive movements of the left upper limb : they had begun when he was seven :

> He was in a very distressing condition, and was referred to me by Dr. Risien Russell, with the view of arresting the spasms by an operation. Having stopped athetoid and clonic movements in two previous cases by excision of the so-called ' motor ' area, I advised that the arm-area in this case should be delimited by excitation and then removed.

On March 20, 1908, Horsley exposed the right pre-central and post-central gyri ; mapped out exactly, by electrical stimulation, the whole arm-area (pre-central gyrus) ; and removed it. The convulsive movements immediately stopped ; and more than a year later—at the time of the Linacre Lecture—there was no sign of any return of them. Purposive movements began to return a month after the operation, and gradually became more efficient : he attributes this return of purposive movements chiefly to compensatory action of the post-central gyrus. Tactile sensation, the ' feel ' of the muscles and joints (muscular sense, arthric sense), the appreciation of temperature, the appreciation of pain, and the ability to identify a point touched (topognosis), were impaired ; and there was profound impairment of the ability to recognise, by contact, the shape of solid objects (stereognosis) :

> He could recognise nothing (nail-brush, prayer-book, bottles, coins, knives, pipe, match-box) when the objects

were placed in his hand, and even when the fingers were pressed over them; though he once guessed a tumbler to be a bottle, because it was cold. When I was thus testing him for stereognosis three weeks after the operation, he made the striking remark, 'If I could only move my hand about, I should know what the things were': thus showing under the stress of effort what the real basis of the stereognostic sense is—namely, merely a complex of tactile, muscular, and arthric memories of movements, which are, in fact, the compound experiences of grasping and feeling objects.

Thus, from this one case, Horsley was able to say that 'the gyrus pre-centralis is in man the seat of representation of (1) slight tactility, (2) topognosis, (3) muscular sense, (4) arthric sense, (5) stereognosis, (6) pain, (7) movement.'

1910 (*æt.* 53)

The General Elections in January and December of this year brought him with a rush into public life. In the January Election, he placarded his house with cartoons—the big loaf and the little loaf, and the peer and the working man—and rented a hoarding where the old Vere Street Post Office was in course of demolition. In the December Election, he stood for the University of London. He had made up his mind, long before 1910, that when he was sixty he would retire from practice and enter Parliament. He failed to get into Parliament: and he did not live to win success out of failure. He wrote and said things which he might well have left unwritten and unsaid; he fought so angrily for female suffrage that he may have done it more harm than good; he made sacrifice of himself, losing time and money and health and peace of mind—all this when he was overworked and overstrained and burdened with anxiety over the health of one who was very dear to him—and he was defeated in one constituency and thrown over by another.

But it is to be remembered, first, that he never for one moment regarded politics as less important than science and practice, never doubted of the necessity and the righteousness of a great political upheaval; fought for that, not

for his own ends. Next, that it was, after all, only a few years that were thus embittered, just the four or five years before the War : politics, in those evil years, had venom hid in them : and he, unlike St. Paul, when there came a viper out of the heat, and fastened on his hand, was not able to shake off the beast into the fire and feel no harm. Last, it is to be remembered that the course of events has already brought unexpected fulfilment of purposes for which he fought.

Three honours came to him in 1910. In March, he was elected a foreign associate of the French Academy of Medicine. In July, he was elected a corresponding member of the Royal Prussian Academy of Sciences. At the meeting in London of the British Medical Association, he was President of the Section of Surgery.

In Brain, this year, he and Dr. Otto May published a paper on the mesencephalic root of the trigeminal nerve, giving the results of a long series of researches into its centres of origin.

On October 6, in Berlin, at the annual meeting of the German Society of Neurologists, he gave an address, ' On the surgical treatment of intra-cranial tumour, in contrast with the expectant medical treatment.' He says that waiting, in these cases, is like the waiting which used to be the rule in cases of appendicitis. Seeing that the only result to be ' expected,' in a case of cerebral tumour, is the death of the patient, he finds the stamp of inhumanity on the phrase ' the expectant treatment.' He reviews the early symptoms of the disease ; and he suggests certain rules of practice :

1. Every case of focalised epilepsy [1] not definitely proved to be idiopathic in origin must be treated by exploratory operation.

2. Every case of *progressive* motor or sensory paralysis of intra-cranial origin must be treated by exploratory operation.

3. Every case of intra-cranial tumour definitely diagnosed must be treated according to its situation, either by removal or by decompression.

---

[1] ' By focalised epilepsy I mean all varieties of epilepsy in which the focus or starting-point of the seizure can be localised to one lobe of the cerebrum.'

He speaks of the difficulties involved in deciding between these two procedures; and refers to a case in which the decision was made not by him but by the patient. He is inclined to believe that, 'except in the case where the field of removal involves direct destruction of the representation of such a single faculty as speech,' removal should be the rule, and decompression the exception. Decompression, he says, should be kept for those cases in which the tumour is known to be in a position from which it cannot be safely dislodged, and those cases in which it cannot be localised. He adds, that in one or two cases of a certain kind, he has obtained a good result from the intra-cranial use of a mercuric lotion.

In November, the Liberal Association of the University of London invited him to stand for the University, against Sir Philip Magnus, at the coming Parliamentary election. They had invited him on a former occasion, and he had declined; now, he accepted. He writes, on November 23, to Sir Felix Semon:

> I am not the ungrateful brute I appear to be by not writing before to thank Lady Semon and yourself for (as usual) much kindness. In addition to my other work I am contesting the University of London seat, and unless you think Magnus a heaven-sent statesman, I hope you will recommend me to every graduate of the University and beg him to vote for me. Yes, I was greatly pleased with the Berlin friends. It is the greatest scientific honour I have received and I value it accordingly. When in Berlin a month ago, I called on Waldeyer, who was very agreeable, and on Munk, but unfortunately the latter most chirpy ancient was away. We shall most assuredly run down and see you in your rural palace. With best love from us both to you both—Yours as ever.

He was adopted on November 28, nominated on December 3: only a few days before the election. The forces of anti-vivisection were of course employed against him. Also, a circular was sent out saying that he, in 1902, 'was one of the signatories to a letter inviting Sir Philip Magnus to contest the seat in the Unionist interests and seeking from him assurances of his "political adherence to the general principles of the Unionist Party."' To this rather shabby

score, Horsley answered that his action on that occasion 'was, like that of other graduates, wholly non-political, and was due to the fact that the sitting member had not acted constitutionally towards the electors.' It is possible that he regarded his candidature as more or less of an experiment. He and a University constituency, nine years ago, were hardly intended for each other: and on December 10, Sir Philip Magnus was declared to be elected by a large majority. Mr. Francis Hyndman, Hon. Secretary of the Liberal Association of London University, writes of Horsley's candidature:

> He asked me to be his agent; so that I came into close touch with him and with his home for some time. I think perhaps the most marked character I noticed was his hatred of compromise, even that smoothing of a statement or an attitude which is almost essential in consolidating the diverse elements in a constituency. This is perhaps more important in a University than anywhere, as all the appeal has to be documentary, and there can be no attempt at anything but a plain statement of position. He was of course an abstainer of the most uncompromising kind, and supported his views with a wealth of scientific argument and data. I well remember his relating an incident which struck me at the time. A foreign admirer, Italian I think, had sent him a present, which had to be taken out of bond and cost some two or three pounds. On opening, it was found to be a number of bottles of fine liqueurs. What did he do, present them to a hospital, or sell them and give the money? No, they were handed to the children to burn: and they said they burnt very well!
>
> Another incident also struck me. The addressing and distributing agents had made some stupid mistake about a number of important papers: which not only entailed considerable extra expense, but ran the chance of losing a number of votes, because essential papers did not arrive until the last moment. He took a most easy-going view, and reproved me in a friendly way for having written a strongly condemnatory letter: and after all it mattered to him and not to me in the end. What interested me was the general kindliness of his point of view.
>
> London University gave him no chance; as the majority of his own profession, which is the largest and the most uncertain in its votes, were certainly against him, not from any defined reason, but because his very individuality and power of action made them nervous of some possible attack

on their rights or privileges. The scientific people were largely for him, about fifty per cent., I think. The law, rather strongly against him, for the same reason as the medicos.

1911

On January 19, 1911, the Lannelongue Prize was awarded to him.[1] It had just been instituted, by Professor Lannelongue of Paris; a gold medal and 5000 francs, for the surgeon who in the previous ten years shall have done most for the advancement of surgery; to be awarded, once in five years, by a committee of surgeons, representatives of many nations—Great Britain and Ireland; the United States and Canada; South America; Japan and China; Italy; Spain, Portugal, and Mexico; Scandinavia and Holland; Belgium; Germany; Austria and the Balkan States—one representative of each of these nations or groups of nations. Horsley received this unexampled honour, the first Lannelongue Prize, from the hands of the President of the Société de Chirurgie. He spoke a few words of thanks, and of compliment to Professor Lannelongue; and said that his own country, which had long been under the influence of John Hunter's teaching, had later come under the influence of Claude Bernard, who had joined together physiology and surgery. 'That is what I have striven to realise. Unfortunately, if surgical science advances with fair rapidity, its practice progresses more slowly. That is because we are held in bondage by traditions from which we have difficulty in freeing ourselves.'

At the Birmingham meeting of the British Medical Association, he and Dr. Finzi read a paper, 'On the action of filtered radium rays when applied directly to the brain.' In these experiments, they had filtered off the less penetrating β-rays; and had used the radium as it would be used in surgical practice. They came to the conclusion that

[1] Lady Horsley writes to a friend, 'Victor has been awarded the Lannelongue prize, for the greatest advance in surgery in the last ten years; and goes to Paris to receive a gold medal and a douceur of £200. And a grateful patient in Australia has sent us a white kangaroo!! Rings at the bell therefore make us extremely nervous, and at the first approach of a railway cart I prepare myself for instant flight.'

radium rays 'exert no influence, discoverable by present methods, on the nerve tissues, but do cause notable changes in the blood-vessels.'

In November, he and Dr. Handelsmann published their 'Preliminary note on experimental investigations on the pituitary body.' They had made a very long series of experiments; Dr. Handelsmann had planned a full report; but in the first winter of the War, serving as a surgeon with the Russian army, he was taken prisoner by the Austrians.

Horsley had not to wait long for a second chance of entering Parliament: he was invited, in June 1911, to address the North Islington Liberal and Radical Association, with a view to being their candidate at the next election: he was adopted, and during 1911-1912 did a great deal of work for the constituency.

1912-1913

Two more honours, in 1912; from Sweden, and from Italy. In May, he was elected a member of the Royal Society of Science of Upsala, in succession to Lord Lister. In December, he was elected an honorary fellow of the Italian Society of Neurology.

On January 19, 1912, at the Royal Society of Medicine, he and C. E. West opened a discussion on the factors which help toward success in the treatment of brain-abscess following a discharge from the ear. On February 13, at the Royal Society of Medicine, a paper by Dunhill of Melbourne was read, 'On partial thyroidectomy under local anæsthesia, with special reference to exophthalmic goitre.' James Berry, Horsley, and many others took part in this discussion; which was twice adjourned, because of the number of speakers. On March 27, at the Hunterian Society, Horsley opened a discussion on the therapeutic value of alcohol; but failed to win support for his opinions. At the Liverpool meeting of the British Medical Association, he read a paper, 'On the diagnosis and treatment of compression-paraplegia.' These all are epilogues to his surgical teaching.

On August 24, he and Dr. Agnes Savill and Mr. Mansell



HORSLEY'S ROOM, UNIVERSITY COLLEGE.

Photograph taken in 1913, the last year of his work at University College.

Moullin published in the Lancet their 'Preliminary Report on the Forcible Feeding of Suffrage Prisoners.'

Toward the end of 1912, he was invited to stand, at the next election, for the Harborough Division of Leicestershire; and resigned his candidature for North Islington. On January 11, 1913, he was adopted by the Council of the Harborough Liberal Association.

On April 24, 1913, he spoke at a meeting of the National Conference against the Opium Traffic. On June 9, he spoke at a conference in Paris against the State-regulation of vice. He described what was being done in England against it: and he denounced and showed up the notion that sexual intercourse is necessary to a man's health. Then, dropping English and speaking in French, he suddenly proposed a resolution in favour of female suffrage. 'We are always talking,' he said, 'of the rights of man: we ought therefore to talk also of the rights of woman. In England, we hope, at a time not too far off, to have female suffrage – perhaps restricted—still, female suffrage. All these questions of State-regulation, all these social questions, ought to be decided not by a part of the community, but by the whole community together.'

In August, the great International Medical Congress was held in London, under the Presidency of Sir Thomas Barlow, with Sir Wilmot Herringham as General Secretary: and on August 11, at a meeting of the Section of Neuropathology, there was a discussion on the treatment of cases of cerebral tumour. The year before the Congress, Dr. Howard Tooth, C.M.G., had published a minute analysis, from the point of view of pathology, of 500 cases of cerebral tumour, at Queen Square, during 1902-1911. He had studied, with the very most care, what may be called the natural history of the tours of a malignant nature, the gliomata—their methods of growth, their character, their vitality—and, from that point of view, had come to believe strongly that in all cases of glioma the operation for decompression was preferable to the operation for removal:

> If these appearances are to be accepted—and I offer them with the greatest possible diffidence—one is forced to infer,

> on pathological grounds alone, that surgical interference, exploration, or manipulation, with few notable exceptions, is liable to awake into greater activity an exuberance which perhaps may be almost latent at the time. . . . There may be some hope of treatment in the future by some application of ultra rays after removal of the bone, such as has given results in some other vascular growths. . . . It seems that in the present state of our knowledge we must be content with relieving pressure by decompression in all gliomata, lest worse befall.

At the meeting on August 11, 1913, he read a further paper, 'On the treatment of tumours of the brain, and the indications for operation.' He now had analysed 265 operations, at Queen Square, on cases of cerebral tumour, of all kinds, malignant or non-malignant. He stated his conclusions as follows:

> There must always be a high mortality, with or without operation; but every surgeon must agree, and perhaps still more after study of the preceding pages, that the mortality is probably capable of reduction, not by shrinking from operation, but by judicious choice of the form of operation, and modification of procedure. I go so far as to say that the period of surgical activity, of which this report has been the survey, has been a necessary stage in the development of cerebral surgery, as it has been in abdominal, rectal, and other branches. On the other hand, the survivals also present many brilliant results, lives not only saved but rendered useful and indefinitely prolonged. But close consideration of the state of the patient in the less fortunate survivals may well raise the question as to whether, by less energetic and extensive surgical treatment, as good or even better results could not have been obtained. . . . The fact is that most cases of declared intra-cranial tumour need operation, perhaps sooner than later, and the risk has to be taken. The question is rather what class of operation shall be selected.

Horsley, at this meeting, spoke of the hope, which never failed him, that earlier diagnosis and earlier treatment would improve the results of the operation for removal of a tumour of the brain. Here is not the place to say more of these difficulties, in surgery and in ethics. The reader must ask himself or herself, What should I wish to be done, if I

were suffering from the disease, or if one of my family were suffering from it ?

In November, came the end of Horsley's candidature for the Harborough Division. The Executive Committee were of opinion that he ' had rendered his candidature futile ' ; and they gave him his dismissal. There is something in this Market Harborough episode which recalls Dogberry's charge to the watch :

> You shall comprehend all vagrom men ; you are to bid any man stand, in the prince's name.
> *How if a' will not stand ?*
> Why then, take no note of him, but let him go ; and presently call the rest of the watch together, and thank God you are rid of a knave.

But they had no doubt that he was ' endangering the seat ' ; and their business was to keep it safe. They had been glad enough, in January, to get him : and he had put his views clearly before them. They had let him know that the constituency was not in favour of female suffrage : his agent wrote to him, January 6, before the first of his many addresses to audiences in or near Leicester :

> Many of those present will be superior agricultural labourers who are not quick at grasping points, but if slow in thought always get there—so that it will be desirable to use the simplest language and emphasise the points. They have no more enthusiasm for ' Votes for Women ' than the Executive has—we have suffered much from women voters—so you will not be surprised if that part of the programme is received in silence. They have tolerated it from Mr. —— in consideration of his other articles of faith.

So far as he could, Horsley took this advice. He did not make female suffrage the chief subject of his addresses ; he never made it the only subject of an address : he expounded the whole programme, just as he had said that he would : he covered a very wide range, and the heckling made it even wider. At first, everything went smoothly : he writes to a friend, January 13, ' I have just started in at Market Harboro', or rather the Harboro' Division (South half) of Leicestershire, quite easily. The people are very kind, as also they have been in North Islington.' On June 25, he

writes, ' I can see that the Leicester people are beginning to realise there is more in female suffrage than they thought. It is curious to see how backward they really are on the point.' But the fate of his candidature was in the hands of the Council of the Liberal Association : and in July he received a more or less formal intimation that he was in risk of being thrown over.

Probably, the harm was done not by what he said in the constituency, but by what he was saying in London and writing in the London papers. Some of these papers found that his unrestrained sayings were ' good copy ' : for example, his speech at a Queen's Hall meeting, July 8, 1913, on the Temporary Discharge of Prisoners Act, the ' Cat and Mouse Act.' He so hated the thought of women being forcibly fed that he did not care what gibes and platform epithets he flung at the Home Secretary and others : he just let himself go. He had published certain statements about forcible feeding, which the Home Secretary had referred to the President and Council of the Royal College of Surgeons ; they had declined to interfere. Here, said Horsley to the meeting, was Mr. McKenna—whom he nicknamed Viscount Holloway—seeking his revenge by secret intrigue. ' Fancy a Home Secretary thus secretly intriguing against private citizens. . . . What an end to a backbiting intrigue by a Minister of the Crown. Such always will be the result of changing Government by Law for Government by a bureaucrat and secret police.' It is no wonder that the Harborough Association was frightened. His reverence for women, his belief in their intellectual power,[1] his longing for their rights and their welfare, made him blind to the *impasse* in which the Government was held. He raged against things as they were, but could not suggest any escape from them save

[1] Among the many letters from his patients, one has come from a lady on whom he operated, in 1902, for disease of the spinal cord : ' I do not think a nobler life has been lost during this terrible war. . . . Sir Victor was most modest, he held that boys inherited their brains from their mother, and frequently put in his letters to me that whatever brains his sons possessed they inherited from their mother.' Among the professional advantages which he helped women to obtain, were the membership of the Physiological Society, and admission to the practice of Queen Square.

by unconditional surrender; and this when the militant suffragettes were still at their criminal offences, and the surrender of the Government to them against the will of the people would have been utterly disastrous and shameful. He could not or would not see that 'government by law' is inseparable from government by legal punishment.

Year in year out, he and Lady Horsley worked together in the cause of female suffrage: there is not room even for a bare list of his addresses: only one or two points may be taken from his rough notes. He believed that the 'establishment of democratic rule by the political enfranchisement of all men and women' would tend to prevent war. He believed that female suffrage would be powerful against the dishonour of women—'Contempt for women is the foundation of sex-immorality. Hence the anti-suffrage movement is the cult which leads to woman's degradation, and from it to prostitution.' He resented the indifference of so many women toward the cause: he said that they were deliberately unpatriotic, content to lead a selfish life, not caring either to help other women or to be of service to their country. He did not see why the cause should be set aside for the War: he said that war-time 'is the very moment when the need of a great sense of civic brotherhood and of social schemes for helping one another compels people to study the principles of human politics.' He never doubted that women would vote for the men who would work hardest to help women and children.

The notes for his addresses contain also many quotations, to be used some with approval and others with derision. Among the latter, are a saying of Alcuin to Charlemagne, 'We should not listen to those who are wont to say *Vox populi vox Dei*: for the noise of the mob is very near to madness'; and a saying of Rousseau, 'Being incapable of judging for themselves, women ought to accept the decision of their fathers and their husbands, like those of the Church.' Among the former, are Penn's 'Liberty without obedience is confusion, and obedience without liberty is slavery'; and two of John Bright's sayings, 'I have not the smallest

objection to the widest possible suffrage that the ingenuity of man can devise'; and again, 'The people who talk about danger from an extension of the franchise are like children who are afraid to go to bed in the dark.' Above all, he enjoyed to quote Mr. Asquith's phrase, 'The free-will offering of a free people.'

But he had said and written much that could not be washed in Lethe and forgotten by the Harborough Executive: and they asked him to confer with them on his predicament. He writes to a friend, September 10:

> It was a great thought of yours to send me Trevelyan's Bright, and I have just finished it with much gratitude to you. As regards the lessons, I fear that my cerebral apparatus must be less appreciative, for I cannot draw from the book the moral that compromise is in principle good. I rather learnt the opposite from my precious knowledge of J. B.'s career. . . . I quite of course intend on November 4th, which I think is my date for meeting my executive, to be very friendly and 'compromiseable.' All I ask is for plain speaking, of which there is not enough in the political world. I quite recognise method is requisite, but I do not believe ever that method should conflict with principle even temporarily.

He attended a meeting on November 1: there was another meeting, without him, on November 8. The Executive Committee passed a resolution as follows:

> That as Sir Victor Horsley, by the course he has taken in reference to Women's Suffrage, has created the impression among the electors of the Harborough Division (*a*) That he regards that as the most important question before the country, (*b*) That he does not disapprove of the lawless methods of the militants, (*c*) That he would not hesitate about sacrificing a Government engaged in promoting the most momentous reforms, if ministers refused to run counter to the wishes of the great majority of the people on the Suffrage question—and as he has thereby rendered his candidature futile, this Committee requests the officers to seek another candidate.

Horsley's answer, printed, is dated November 17. On point (*a*), he answers that he had held twenty-six meetings:

he had not made female suffrage his chief subject. He gives a list of his subjects :

> The Liberal Programme and Government's record : 15 meetings.
> Tariff Reform : 12 meetings.
> Land Question, Rating Reform, etc. : 11 meetings.[1]
> Labour and Social Questions : 9 meetings.
> Finance : 7 meetings.
> Franchise Bill, Adult Suffrage, and Plural Voting : 7 meetings.
> Insurance Act : 5 meetings.
> Temperance Legislation : 2 meetings.

On point (*b*), he answers that he had said plainly and often that he was not in favour of militancy. On point (*c*), he answers that the statement is baseless, and that no opportunity of repudiating it has been given to him. Finally, he says :

> I would emphasise the fact that the present issue is not one of my personality, or of my predilections for a constituency in which I have found so many friends, but whether a Liberal candidature is to be determined on an open question or upon the whole series of social reforms which constitute the legislative programme of the Liberal party. This latter was your view when you adopted me as the prospective candidate for the Harborough Division, it was also my view, and I have not departed from it.

On November 19, one of the chief men of Leicester writes to him :

> I could not be faithful to you if I did not frankly express to you what my experience has been. I find the consensus of opinion is that your chances of success are gone, as there is a very strong feeling against the sympathy you have shown to the militant side of the suffragette movement. . . . —— told me strongly that, from his own knowledge, from every part of the division, he had strong testimony from the workers, that it would be useless for your candidature to continue with any certainty of success. . . . I may say it is very painful to me to make this communication to you, and I wish I had not to write, but I cannot be faithful to you if I withhold from you what I have heard.

---

[1] He was a Vice-President of the Association for the Taxation of Land Values : he resented, heart and soul, the possession of huge estates in London by a few landowners of prodigious wealth.

A few days later, the Council of the Association held a final meeting, at which Horsley took leave of them with all dignity, and they of him with such dignity as they could command. He generously remained a good friend to Leicester, interesting himself in plans for its welfare. He was 'approached,' between January 1914 and May 1915, on behalf of four constituencies. The last of these four offers came to him just as he was leaving for Egypt. He writes back, on May 17, 1915:

> I am certainly anxious to get into Parliament, and particularly to represent a Northumberland or Durham constituency. I would gladly have come to Gateshead to talk it over with you, but am just, in half an hour, embarking with a division of the Dardanelles Force as Surgeon-in-chief of a Hospital, Surgical Division. I therefore may not be at liberty for many months. This may render me, in the eyes of the Liberal Association, as unknown to them, an impossible candidate. But I hope not. Further I am sure that the Labour party would, under present circumstances particularly, so far approve my candidature as a Liberal that they would not oppose me. At least I have every reason to think so. I am extremely well known to the Labour leaders.

Last of all, an offer from Huddersfield. If he had lived to come back from Mesopotamia, there was that constituency wanting him. For on March 23, 1915, he had given an address in Huddersfield, which had won him much goodwill: he went to France on March 28: but the Huddersfield Liberals made up their minds to wait for him. There is a letter, written six days after his death, to his elder son, Captain Siward Horsley, Gordon Highlanders, from the President of the Huddersfield Liberal Association:

> We held a meeting this afternoon, to bring forward your father's name as a likely candidate for our town's representation in Parliament. His was the only name to be considered, and I have no doubt that it would have been gladly and unanimously welcomed. All that we could do was to bow to a Higher call, and lament our loss. I was unanimously asked to convey to you and your family our deepest sympathy; and to say that we share your loss and sorrow with you. I find that Sir Victor was well known in this district, and highly honoured: and we all feel that it is a

national bereavement: but the memory of his noble life and great sacrifice will be fragrant for many years to come.

1914. January to August

In April, he gave evidence before the Royal Commission on Venereal Diseases. He laid stress on five points: (1) That death-certificates ought to be privileged statements, not shown to the family, but sent direct to the Registrar. (2) That there ought to be more education of children in the facts of sex. (3) That there ought to be more education of adults in the facts of venereal disease; this education to be given mostly by non-medical teachers. (4) That the venereal diseases ought to be made notifiable: the notification would be regarded as confidential. (5) That there ought to be protection for any doctor who should warn persons against the danger of infection from this or that one of his patients. But Horsley's evidence is only a small part of the service which he rendered, in this matter, to the public. He and others had been quietly working for many years to get the Commission appointed: and the letter in the Morning Post, which led up to the appointment, was partly his.[1]

On May 28, he writes to a friend:

> People who a year ago thought I was cracked are coming to see that they too must accept women's enfranchisement as a measure of vital and urgent importance, and that militancy is a symptom of the disease-condition set up by McKenna's stupidity in being antisuffragist. . . . I am quite sure that I did the right thing with the Harboro' constituency. No, it is the temperance factor which is as much or more against me.

In June, in Birmingham, at the annual conference of the

[1] As Mr. E. B. Turner said, at a meeting held a few days after the news of Horsley's death—'Twenty years ago, the fight to get the Royal Commission on Venereal Diseases began; and it was seen that a man was required of forceful nature, who would give time, trouble, and energy; who would collect, collate, and bring forward the mass of medical information that was needed to convince the public. Sir Victor threw himself into the campaign, spoke at meetings, and helped to wear down the opposition. Whatever good came from the Commissioners' work, the whole nation would owe to Sir Victor Horsley an enormous debt of gratitude for what he did.'

National Council of Trained Nurses, he gave an address on 'Nursing under the Insurance Act':

> People say 'There are not enough properly trained nurses in the country.' I know there are not. Now is the opportunity for the nursing profession to tell the public why there are not enough trained nurses. I do hope the public will read their papers, and consider the points and conditions of nursing work. I am convinced that the shortage of fully-trained nurses is due to the fact that fewer persons are entering the profession, and that the chief reason for this is that the remuneration of nursing, as a skilled and learned work, is insufficient. Secondly, the hours of nursing are long. Two months ago we had an interesting paper suggesting an eight-hour shift, and showing that it could be successfully carried out. It is certain that the hours of working are too long, and the work is often monotonous. Lastly, we have to recognise the competition of other channels of work, equally or better paid, and giving greater liberty.

In June, also, in Southsea, he spoke at the annual conference of the International Abolitionist Federation. His speech is reported as follows:

> He said that prostitution was to a large extent due to drink; not necessarily drinking to excess. His personal experience was supported by statistics from Sweden. The wage question he also regarded as a fundamental one, and at the bottom of the problem. It had been proved that with low wages the rate of prostitution became high. The improved morality of the Army began in 1904, when increased pay was given to the soldier. He regarded the land question as a contributory factor to prostitution, because the present land system had its results in bad housing, overcrowding conditions, slums, etc. 'The discomforts of home drive a girl on to the streets for amusement, and sometimes for prostitution.' They had 5,000,000 people living in slums, and until they adopted a rational system of land values they would never solve the housing question. Another cause of prostitution was the social position of women, and the theory of a dual morality—one for women, another for men. He held that anti-suffrage views were responsible in a great measure for the continuance of that idea of degradation. He urged that what was wanted for dealing with this and other problems was the national co-operation of men and women.

In July, he published a short note on a point of general surgery, 'Hæmostasis by application of living tissue.' The

annual meeting of the British Medical Association, this year, was in Aberdeen: and the University of Aberdeen took occasion to confer on him the degree of a Doctor of Law. He read a paper on 'The reform of the vital statistics of the nation'—his old theme, the misuse of death-certificates—with a prophecy of the Ministry of Health: 'The office of the Registrar-General ought to be completely reconstituted as a sub-office of a Ministry of Public Health, which will unite the three existing and incoordinate branches of public health work, namely the Local Government Board, the Board of Education, and the Home Office.' He also gave an address, at a men's Sunday meeting, on 'Alcohol as a racial poison': and, at a great open-air meeting in Castlegate, spoke on female suffrage. From Aberdeen, he and Lady Horsley went to Orkney, where he spoke in Kirkwall on female suffrage. They got back to London in the first week of the War.

V

Professional Politics

The administrative affairs of his profession, its place in the social system, its influences on the mind of the community, were of unfailing interest to him: they exercised his desire to improve the conditions and the rewards of general practice, and to uphold the rights of his less fortunate brethren against the insolence of office. The education and examination of students, the penalties for wrongdoing, the protection of honourable men from slander or blackmail, the protection of the public from quackery, the teaching of hygiene and temperance, the adjustment of the balance between State-service and private practice, the registration of nurses, the registration of midwives—these all appealed to him. He had well-defined rules of action: he knew what he wanted, and he was ingenious to plan assaults and to carry them through. One of his friends has said that it vexed him, to be told that he enjoyed fighting: and of course it vexed him to feel that a man could think of him as merely quarrelsome, flying at harmless passers-by just for the fun of it: but he was the Achilles of his profession—'Impiger, iracundus, inexorabilis, acer'—and its politics were never dull to him. Only, his habit of taking for weapons any handy phrases, not carefully weighing their offensiveness or reckoning their effects, and the rather dictatorial air which was natural to him, delayed the success of his plans: he was too ready to use insolence of rebuke against insolence of office.

This readiness to find fault with people in high places was reconciled in him—he was full of vivid contrasts—with unceasing thoughtfulness for those who neither were nor

ever would be anywhere near the high places.[1] And, of course, it is not only in professional politics that one observes this contrast in him. Always, he lived up to the difficult saying, 'All men are equal in the sight of God.' For example, he rebuked the Archbishop of York, for saying something charitable, early in the first year of the War, of the Kaiser. He rebuked Lord Morley, for half a dozen words in his Rousseau: any physiologist might resent them, without calling Lord Morley to account for them. As for lesser persons in high places, he took them to task when they needed it. Happily, he adopted into his life not the first half only, but the whole of the text, 'Deposuit potentes de sede: et exaltavit humiles.'

His love of his profession was not sentimental: it was clear-sighted, masterful, and creative. As he came to be on the side of democracy, so he came to regard his profession as a trade-union: it was of a kind apart, for its members did a vast amount of work for nothing, nor could they strike. None the less, it was a secular body of men of business, whose object was to earn a livelihood: and many of them could not earn so much as they deserved, but were overworked, underpaid, put-upon, ill-organised, and ill-represented. He longed for every one of them to have a good time. That is the abiding spirit of all his action in professional politics. The set scenes for it were (1) the Medical Defence Union, (2) the General Medical Council, (3) the Royal College of Surgeons, (4) the British Medical Association.

I. THE MEDICAL DEFENCE UNION

The episode of the Folkestone Church Congress in 1892 was the beginning of his representative work for his profession. The Medical Defence Union was founded, in 1885,

[1] Dr Alfred Cox, Medical Secretary of the British Medical Association, who was for many years in close work with Horsley over the Association's affairs, writes: 'The man who could be overbearing and even insolent to his equals and "superiors" was always most considerate to smaller men. Nothing in his character was more remarkable to me than the deferential way in which he would listen to the humble workers in the causes in which he was interested, and the way in which he would willingly give way on many occasions to personal experience in matters which he could only deal with theoretically.'

in London. It was not founded on the right lines; and at first it failed. In 1888, it was reconstructed, in Birmingham, with Mr. Lawson Tait as President, and was made successful. But Mr. Tait's methods were not approved by everybody: and at the time of the Church Congress he spoke, at a meeting of anti-vivisectionists, in a tone which his profession deeply resented.[1] He resigned his Presidency; and the Medical Defence Union came back to London, with Horsley as President. There is a letter to Horsley, written a few days after the Folkestone Church Congress, from one of the officials of the Medical Defence Union:

> Your courage and able defence only show us that the best interests of the profession lie in your hands, and we owe you grateful thanks for your disinterested conduct. If you were elected President of the Union, would you undertake the duties? I am writing unofficially of course at present—at the request of well-known men in London. Your action has won the respect and gratitude of every man I have come across, and I can only say we honour you for it.

Dr. A. G. Bateman, its Hon. Secretary for more than a quarter of a century, writes:

> He threw himself heart and soul into the work of Medical Defence, sparing neither himself nor the Executive in the fulfilment of his duties. He not only attended every Council and Executive Meeting, but gave many other hours of his valuable time to the Union.
>
> He held that the work of Medical Defence is threefold, concerning a medical man in relation to his patients, to his colleagues, and to the general public; and that it is both direct and indirect. Direct defence, by an impersonal and powerful association, was needed, because a medical man is peculiarly exposed to blackmail and other methods of attack from unscrupulous people. It was of the utmost importance that his defence should be conducted by an impersonal body like the Union: it proved to the public, the Court, and the parties concerned, that the assailed practitioner did not

[1] His position with regard to experiments on animals was equivocal: for in 1893, at an important meeting of his profession in Birmingham to promote the founding of the British Institute of Preventive Medicine (the Lister Institute), he said that he fully assented to the resolution, feeling that, while he objected to a certain class of surgical investigations, bacteriological experiments on animals had proved of great value.

stand alone but had the support of his fellows. Horsley urged this point very strongly; and his persistent advocacy of its importance brought a large increase of members. In many instances, the mere fact that the Union, with Horsley at the head of it, was prepared to support and defend a practitioner against litigation, made his assailants reconsider their position and withdraw their attack; but it must be clearly understood that the Council had a legal right to refuse any man whose conduct had been, in their opinion, unprofessional or improper. Blackmailing practically ceased when the Union was proved to be ready for action.

Indirect defence refers, *inter alia*, to conditions under which a man is injured not only by disputes with other practitioners but by competition of an improper and unlawful character. Injurious competition may come either from his qualified colleagues or from unqualified practitioners and quacks.

While Horsley was President, a case arose in which two members of the Union were concerned. It involved serious issues: for by an error of the Executive, the case of one member was refused, and the case of the other was accepted. The refused member took legal proceedings against the President. It became necessary to prevent the mischief from spreading, to the detriment, if not disruption, of the Society. Horsley's management of this grave trouble showed his masterly skill in tactics: the legal proceedings were kept within reasonable limits and brought to a satisfactory end; he visited, with two of the Society's officers, the chief centres in the provinces, and held meetings at which the cause of the trouble was fully and clearly explained: and thus prevented the threatening disruption. His charm and his diplomacy at the meetings worked wonders: and the Society, instead of losing strength, gained it, and with it gained increase of the general confidence in its Executive.

Horsley always felt that the defence of the profession against unqualified practice was seriously handicapped by the wording of the penal sections of the Medical Act, 1858. It was held that, by these sections, medical practice was not the monopoly of registered practitioners: that only the scheduled medical titles were conserved. In other words, any unqualified person could practise medicine with impunity, provided that he did not call himself by any of the numerous titles appended to the Medical Act. Horsley strove in every possible way to obtain amendment of the Act: but though he drafted or helped to draft many Bills, no progress was made in the face of the extraordinary love of quackery which is to be found among Members of Parlia-

ment in both Houses. He urged in season and out of season that, for the protection of the public, medical attendance on the sick ought to be restricted to qualified practitioners; and that there was urgent need of legislation, not to create a monopoly, but to protect the public. But the opposition was too strong: and during his Presidency, and since then, it has only been possible to prosecute unqualified persons under section 40 of the Act, which is hopelessly inadequate.

In October 1897 he had to resign the Presidency, on his election to the General Medical Council: but he never lost touch with the Union. Its work was congenial to him: and he was ever ready to admit that he had learned a great deal from the many thousands of medico-legal cases which were dealt with during his term of office. The experience was of value to him on the General Medical Council, in the iniquities of medical aid associations, the covering of unqualified assistants, and unqualified practice.

His services as an expert witness, on behalf of members unjustly attacked, were often asked for and never refused; and he would at any time confer with those who were conducting the defence. A keen fighter, he was equally happy either defending or attacking. 'Compromise' was a word not to be found in his dictionary: and 'tactics' suited him better than 'tact.' They who worked with him soon realised that time was made for man, and that 'office hours' had no strict limit: certain work had to be done and finished straight on end, according to him.

2. THE GENERAL MEDICAL COUNCIL

In 1896, at the Carlisle meeting of the British Medical Association, Horsley and others had urged the reform of the General Medical Council: and on October 13, 1897, he was elected to it as one of the three direct representatives chosen by the whole profession. He had said very plainly, in his electoral address, that the Council was remote from present needs, and of little use to men in practice. It had shown itself indifferent to cases sent up to it from the Medical Defence Union: but that was a small matter. The serious grievance was in the slowness of its ways, and the difficulty of access to its doings. He went to it, as he let it know, to stir it up: it was not minded to be reformed at short notice; and he did not at first gain its approval. The

work of the Medical Defence Union, at closer range and with quicker results, had exactly suited him, for he was always intended by nature to be in final authority—an admirable President, an admirable Chairman—but he did not fare so well in the give-and-take of Committee-meetings. It was a great change for him, from the rapid decisions of the Medical Defence Union, the hand-to-hand encounters with litigants, the adventures in the Law Courts, to the intricate and argumentative affairs of the General Medical Council, its formalities, deliberations, and wearisome correspondence with universities and colleges over examinations and degrees. He offended by his vehemence; and, it may be, by his annual 'addresses to his constituency,' in which he explained to the profession at large what the Council was doing or was leaving undone. But, in the long run, he put through, or helped to put through, many of his plans.

One of his colleagues on the Council, Sir Charles S. Tomes, writes of him:

> His first public action on the Council was to raise the question of infringement of its members' rights to inspect documents preserved in the Council's archives: he had been denied access, by the President, to documents bearing upon recent decisions. Thus, his first action brought him into direct conflict with the President: and his motion was defeated. But in the next session, other direct representatives moved that members wanting to inspect documents should obtain leave from the Council or from its Executive Committee or, if neither were in session, from the President: but only the Council should give leave for inspection of documents relating to penal cases, these being confidential. This compromise was agreed to, and Horsley at once obtained leave to inspect the documents relating to some recent penal cases.
>
> About the same time, he raised a question as to the conduct and expenses of the legal business of the Council: he failed to carry his motion: later, he returned to the charge, and called attention to the fact that neither the solicitor nor the standing counsel (legal assessor) had ever received any formal appointment.
>
> As one reads the Minutes of the Council, during Horsley's early days of membership, one cannot fail to see that his proposals were very often defeated, and later, and perhaps in different terms, were effective. The explanation is not far to seek. Feeling strongly on them, and often having

a very strong case, he was not careful to present it in a non-personal form: on the contrary, he sought to fasten blame on individuals, and thus provoked antagonism. This was a defect of his qualities. Directness, earnestness of purpose, dislike of compromise, and some inability to recognise that when he was convinced of being in the right, others might differ from him without being actuated by wrong motives, combined to give a cast to his methods. He had some consciousness of this habit of mind, and did not in the least object to being chaffed with such enquiries as 'Who is your latest scoundrel?'

The Use of Titles.—A case which greatly interested him, and had much to do with his attitude toward the Council, was that of Mr. ——, a licentiate of the Society of Apothecaries and an M.D. of Philadelphia. He held no British qualification except the L.S.A. He styled himself both M.D. and 'Physician and Surgeon': but later he seems to have abandoned the use of the M.D. The Penal Cases Committee recommended that proceedings be taken against him: and he was convicted before a bench of magistrates on the wrongful use of the title of 'physician.' The charge of wrongful use of the title of 'surgeon' was not pressed after the one conviction. An appeal was lodged: he died before it was heard: finally, the conviction was quashed: the Court held that though he had no right to the title of 'physician,' or 'physician and surgeon,' he had not used these titles 'wilfully and falsely.' The Council were behind this action: but the nominal complainant was a solicitor's clerk. Horsley thought that the prosecution was altogether improper and should never have been undertaken: though it had been intended, more or less, to be merely a 'test-case.' His interference was between the conviction and the hearing of the appeal. It led to some very hot discussions: one member of the Council went so far as to call him a Yahoo: his motion against the Penal Cases Committee was defeated: but the attention called to the whole affair was not without effect.

The Midwives Bill.—About this time, he was appointed a member of the Conference on the proposed Midwives Bill, which became law in 1902: he took great interest in this work, and in the relations finally established between the Central Midwives Board and the Council.

Personation.—Several instances of the personation, by unqualified men, of deceased or far-away practitioners, came to the knowledge of the Council. The law on this matter was peculiar. Personation was not, of itself, a legal offence, though it might easily induce the pretender to commit some offence. The Council therefore desired to make personation as difficult as possible, and a Committee was

appointed, with Horsley as Chairman, in 1899. Questions of law had to be decided: it was not till 1902 that the Committee made its recommendations. These mostly were adopted, and have been found very useful.

Licensing bodies and their examinations.—It appeared to the Council that there was no agreement among the various licensing bodies as to the exemption from portions of their examinations to be granted to students who had passed in these subjects elsewhere. Horsley moved that the Council should be furnished with lists of these exemptions: and this is still done annually. It was found that some bodies gave no exemption, and others gave a good deal, but not in their final examinations. He raised a further question as to the examinations of the Conjoint Board (England) in the preliminary scientific subjects, and their recognition of teaching institutions not yet recognised by the Council. He was of opinion that the requirements in chemistry were insufficient—he included those of the Conjoint Board of Scotland—and that the matter ought to be reported to the Privy Council.

Amendment of Companies Acts.—About this time, a Companies Acts Amendment Bill was before Parliament: and a small Committee (the President, Horsley, and myself) were empowered to ask the Government to insert a clause preventing the registration of Companies to carry on medical, surgical, and dental work. One way of evading the provisions of the Acts was by incorporation into a Limited Company, generally of the one-man type, with the required number of signatories made up of men of straw. The Committee, having waited without success upon the President of the Board of Trade, drafted a memorial to the Lord Chancellor, which was favourably received. Amendments were introduced, in the House of Lords, and were thrown out in the Commons. This question of evasion by incorporation came up again and again, and Horsley always took an active part. But little has been done, save that the registrars of Joint Stock Companies now refuse to register titles which too clearly are against the spirit, if not against the letter, of the law.

Finance of the Council.—The Act constituting the Council (1858) laid down a very definite plan for the administration of the finances of the Council, and of its Branch Councils: but this plan involved a sort of battledore-and-shuttlecock transference of monies from one account to the others and back again, which was hard to follow. Horsley moved for a Committee to simplify these matters, and was appointed a member of it. The expenditure of the Council and its Branches largely exceeded the joint income; and the Committee had to consider possible economies, as well as simpli-

fication of accounts. It was not thought desirable to try for an Amending Bill in Parliament: but expert advice was taken, and some improvements were made in the presentation of accounts.

Thus, it will be seen that Horsley, as might have been expected, took a very active and useful part in the work of the Council, and after his initial stormy period was largely concerned with less controversial subjects, and was more uniformly successful in carrying his points.

At the end of his first term of office of five years, he was re-elected, by a large majority. Just before the end of his second term, he resigned, that he might save the Council from the expense and trouble of a separate single election. His reason for not desiring a third term of office was, that he considered that for the most part the things which he desired to do on the Council had been accomplished, and that he now could be more useful elsewhere.

3. THE ROYAL COLLEGE OF SURGEONS

The Royal College of Surgeons of London was founded on what was left, in the eighteenth century, of the old Guilds. In 1743, the union of the Barbers' Company and the Surgeons' Company was dissolved, and the Corporation of Surgeons of London was instituted. Near the end of the eighteenth century, the Corporation of Surgeons was dissolved, or was alleged to have been dissolved: and in 1800 it was reinstated or reconstituted by a Charter, under the title of the Royal College of Surgeons in London. The Fellowship of the College was not instituted till 1843. By the Charter of 1843, the right of serving on the Council of the College was given to Fellows only. Members have no place on the Council, and no voice in the election of the Council. In 1884, the reception of the Erasmus Wilson bequest made it necessary to apply for a new Charter, as the College was not allowed to hold property of a yearly value above £2000. At this time, two associations were formed, one of Fellows, the other of Members: both of them were in favour of making the management of the College more widely representative: but the new Charter, granted in 1888, left things as they were. In 1889, the Association of Members unwisely attempted to hold a meeting of their own at the

College, against the will of the Council; and found themselves locked out. Over this defeat, they went to law with a 'test-case,' Steele *v.* Savory; it was decided against them in 1892: the failure and the heavy cost of this lawsuit killed the Association: but in 1894 it was formed again, as the Society of Members. Thus there are two bodies outside the Council as its critics—the Association of Fellows, and the Society of Members. Horsley belonged to both of them. In 1896, the Committee of the Association of Fellows asked him to stand for the Council, and promised to support him: but he did not accept this invitation.

For thirty years, 1884-1914, at every annual meeting of the College, certain Members have protested against the exclusion of Members from a place on the Council and a vote for the Council, and have asked for direct representation. 'Resolutions to this effect,' says one of them, 'have been carried by large majorities, and often without a single vote recorded in opposition.' Nothing comes of these resolutions: the Council receives them with impassive dignity: like the Senate, who remained silent on their chairs of office when the Gauls broke into the Senate-house. For one who has never taken part in these affairs, it is hard to see why the Members should not have what some of them so greatly desire. The Council, about 1904, decided 'That as the Members of this Council represent the body-corporate of the Royal College, and consequently its Members as well as its Fellows, it is the opinion of this Council that no further representation is desirable.' Doubtless the Council was afraid of entanglement in controversies which would hinder and impair its regular work.

In 1912, and again in 1914, Horsley moved the invariable old resolution—word for word the same, each time—on behalf of the Society of Members, at the Annual Meeting of the College. In 1912, one of the Council answered him, denying that the Council 'considered the Members unfit to sit with them,' and saying that

> The reason why they did not agree to admit Members into the Council was because the Council of the College was not a legislative body. The matters with which it had

more especially to concern itself were the care of the most valuable museum of its kind in the world, the care of a library which deserved the high reputation it held, and the inspection and conduct of what he maintained were the most important and the finest examinations in surgery. He did not think that the Council would be better qualified to deal with these matters if Members were elected on it. The next reason was that an election in which all the Members of the College, who were scattered all over the world, took part, would be very costly, difficult, and he thought impracticable. In matters affecting the profession, the Members had the British Medical Association, which had proved itself to be admirably fitted to safeguard the interests of members of the profession.

4. THE BRITISH MEDICAL ASSOCIATION

The affairs of the Medical Defence Union, the General Medical Council, and the Royal College of Surgeons, were not permanent in Horsley's life ; he came to them, followed them, and went on from them : but the affairs of the British Medical Association are continuous with him, and he is never away from them. He set himself to help to make it what it is now, the Doctors' Union, powerful and effective and well-organised on modern lines. He wrote in its Journal, took a chief part in its Annual Meetings, was one of the founders of its new Constitution, served on its Council and Committees, was Chairman of its Meetings of Representatives, and Chairman of the Marylebone Division of its Metropolitan Counties Branch. He worked, for it and through it, along every possible way of politics. To him, it stood for the resistance of his profession against autocracy and bureaucracy ; he looked for its strength to tell on the nation, the Government, Parliamentary Committees, Friendly Societies, and public institutions of education and of health ; it was 'democratic,' in touch with the present, not bound by traditions ; it could do what the Royal Colleges and the General Medical Council were not doing ; it could make people hear what it said to them. As he wrote in 1901, 'It is in my opinion ridiculous, trying to conciliate the old men at the head of the G.M.C. They must be crushed or driven to do the right thing, and if we

can only organise the B.M.A. successfully, we shall do the rest easily.' He had constantly in his mind the power which the Association might attain on these lines, as the one great intermediary between the State and his profession, the one system in which the doctors would be united to defend themselves from injustice, to provide a better service for the nation, and to enforce proper rates of payment of their work.

Dr. Alfred Cox, Medical Secretary, has written of this factor of Horsley's life :

> More than any other man he made the demand for the reconstitution of the Association on democratic lines ; for he was the chief inspiration as well as the leader of those who called together the Manchester Conference in 1900, and afterwards approached the Council of the Association, at Ipswich, with the proposals which led it to set up the Constitution Committee.
>
> . . . It was natural that Horsley should become the first Chairman of Representative Meetings. He held office from 1903 to 1906 ; and I believe he was as proud of that office, and all that it meant in providing opportunities for moulding the organisation of the profession, as of any honour that was ever conferred on him : for he had a great idea of the dignity and importance of the Association, and of the great responsibility of its chief executive officers. He continued to be a member of the Representative Meeting until 1912, and was as able and helpful as a member as he had been as Chairman.
>
> He filled nearly every post in the Association except that of President and Chairman of Council. He was a member of Council from 1900 to 1912, and was chairman of many committees. His chief Association work was done in connection with the Organisation Committee, where he took a very active and prominent part in drafting the Articles and By-laws, and in the application for a Royal Charter : and on the Medico-Political Committee. On the latter, he took the leading part in forming the policy of the Association in regard to reform of Coroners' Law and Death Registration, Medical Inspection and Treatment of School Children, Amendment of Medical Acts, the constitution of a Ministry of Public Health, State Registration of Nurses, and suppression of unqualified practice and quack advertisements.[1]

[1] How hard he worked, is shown by the mass of his correspondence, notes for addresses, minutes of meetings, reports, and press-cuttings. The work for the reform of Coroners' Law, which began with the affronts

> . . . It will help some readers to realise the kind of man he was, to recall his action in regard to a presentation the Representatives proposed to make to him when he left the Chair. A considerable sum of money was collected by Dr. W. Douglas, and a handsome piece of plate bought, before Horsley heard of it. He at once informed Dr. Douglas that he would rather the presentation were not made, much as he valued the feeling that inspired it. His reasons were very characteristic. First, he said, he had already been thanked very generously for his work in the Chair, and secondly, he had all his life held the view that personal presentations should not be made for public service, except by the State—'Work, whether political or scientific, if done in the interests of the profession, brings with it not only the ample satisfaction of having contributed to social progress, but also earns constantly recurring grateful acknowledgment from those who happen to more directly benefit by what has been attained.'
>
> . . . He, a consultant of the consultants, was able to understand and sympathise with the difficulties of the general practitioner in a way that was all the more effective because taken from a detached point of view: and his labours on the Contract Practice Sub-committee left him with a deep conviction of the need to improve the economic position of the general practitioner, particularly in the poorer districts.

That is the meaning of his fight for the Insurance Act. All his work, year in year out, had made it clear to him that the Act, though it must have its faults, would provide

put on the doctors by the Coroner for South-West London, took three years, 1903-1906, and came to nothing, or next to nothing: the work for the medical care of school children, the establishment of school dental clinics, and the teaching of hygiene and temperance in schools, took many more than three years: the registration of nurses in England occupied him even in Mesopotamia; he writes to Dr. Alfred Cox on May 15, 1916; he is angry over the new College of Nursing, and says unkind things of its supporters: 'I have just received the report of the Conference between —— and the Registrationists. It is very difficult out here some three hundred miles up the Tigris on a burning mud flat in the middle of cholera, dysentery, diarrhœa, *etc. etc. etc.*, to judge exactly what is being done at home, but it is quite clear that all the old enemies of the B.M.A. are behind ——, and pushing his nasty College for all they are worth. It seems to me that it being only a manœuvre to push off Registration, the B.M.A. ought to support Chapple and his Bill more actively. Also that our present representatives on the Central Committee to run the Bill must do much more to fight this vile private hole-in-the-corner arrangement. Considering that we have been working for twenty-five years, it is a little too much to see the whole thing jockeyed. . . . The idea of starting a College, not a truly educational body, but the sham archaic examinational institute for private registration that we have suffered from so bitterly all these years, is so like the enemies of liberty. . . . It is very annoying being in all this chaos of folly and not able to help at home.'

not only better service for the insured, but more favourable conditions for men overworked and underpaid in general practice. Having this invincible faith, he stood up against a great outpouring of ill-will and abuse from many of those whom he was working for.

It was in June, 1911, that the British Medical Association, on behalf of the profession, finally stated the ' six cardinal points ' which it was determined to obtain :

1. An income limit of £2 a week for those entitled to medical benefit.
2. Free choice of doctor by patient, subject to consent of doctor to act.
3. Medical and maternity benefits to be administered by local Health Committees, and not by friendly societies.
4. The method of remuneration of medical practitioners adopted by each local Health Committee to be according to the preference of the majority of the Medical Profession of the district of that Committee.
5. Medical remuneration to be what the Profession considers adequate, having due regard to the duties to be performed and other conditions of service.
6. Adequate medical representation among the Insurance Commissioners in the Central Advisory Committee and in the local Health Committees, and statutory recognition of a local Medical Committee representative of the profession in the district of each Health Committee.

A few days later, the British Medical Association sent out the ' pledge ' which was signed by the very great majority of the profession :

I, the undersigned, hereby undertake that in the event of the National Insurance Bill becoming law, I will not enter into any agreement for giving medical attendance and treatment to persons insured under the Bill, excepting such as shall be satisfactory to the medical profession and in accordance with the declared policy of the British Medical Association ; and that I will enter into such agreement only through a local Medical Committee, representative of the medical profession in the district in which I practise, and will not enter into any individual or separate agreement with any approved Society or other body for the treatment of such persons.

On November 23, at a Special Meeting of Representatives, it was decided that the Association should hold to the six cardinal points.

On November 30, the Prime Minister's private secretary wrote to Mr. Smith Whitaker, the Medical Secretary of the Association, offering him the position of Deputy-Chairman of the Commission under the Act. On December 2, the Council of the Association discussed this offer. Horsley said that 'the real question before them was, Would they be acting in the best interests of the profession, if they gave permission to Mr. Smith Whitaker to accept it? He believed that they would, and that their action could be justified completely, at any meeting of the profession, by the simple statement that the Bill would be passed in spite of the profession.' It was decided, by 38 votes to 3, that Mr. Smith Whitaker was free to accept the offer. At the same time, a memorandum, signed by the Chairman of the Representative Meetings and the Chairman of the Council, was sent to the Members of the Association. It went over the six cardinal points, and the pledge; and it advised the profession to be content with what it had gained:

> The Insurance Bill will probably become law within the next fortnight, and the Association and the profession have to consider their future action towards it.
>
> The policy of the Association as expressed in the above stated six cardinal principles is absolutely unchanged.
>
> The Bill by the efforts of the Association has now been so amended that there is no legal barrier against the profession securing the fulfilment of its entire policy.
>
> The following principles of the Association have been incorporated in the Bill as it has now left the House of Commons—namely, the free choice of doctor; the administration of medical and sanatorium benefits by the local Health Committee; the representation of the profession on all the administrative bodies established under the Act; the statutory recognition of a committee of the medical profession in each district.
>
> In addition, the essential principle of a wage limit is recognised by Clause 15 (3) in the Bill, the precise amount being fixed by the profession in each district in negotiation with the local Health Committee.
>
> The remaining principles of the policy of the Association not dealt with under the Bill are the rate and method of remuneration, and the amount of the wage limit. The first of these—the most essential of the principles of the

Association—the Representative Body decided should be settled by agreement between the members of the profession in each district and the local Health Committee. As regards the second, it decided that this also, if not embodied in the Bill, should be fixed by local negotiation.

On December 12, Horsley spoke at a Branch Meeting of the Association ; he defended the appointment of Mr. Smith Whitaker : 'After all, the Insurance Bill was going through over the heads of the profession. When they came to the real fight in the Divisions of the Association, they would have a good friend on the Central Body. The Council had had to make the best of a bad situation.' On December 16, the Act received the Royal Assent. On December 19, came the disastrous 'mass meeting' at Queen's Hall ; it did no good, and it degraded the profession in the eyes of the public. Horsley was not on the platform, but in the body of the hall. A resolution was moved and seconded, 'That this mass meeting of the medical profession is of opinion that the six cardinal points originally formulated by the British Medical Association are not guaranteed by the provisions of the Insurance Act in a manner which satisfies the profession.' He rose to speak, and was hissed and shouted at : he was invited on the platform, and stood there, and was howled down. He bore it well : he was writing his letters at home, half an hour later, as if nothing had happened. Finally, came the threat that if the doctors would not work the Act, men would be found, somehow, to take their place : and the miserable day when the newspapers got out their sensational posters, *The Doctors Brought to Heel*, *Stampede of the Doctors*—that sort of thing.

It is to be noted, that he was not a member of the State Sickness Insurance Committee, which had formulated the Association's policy : and that he had only thrown in his lot with his colleagues on the Council, and with the Divisional Representatives. But men who think themselves betrayed must find somebody to call a traitor ; and he, with his imperious self-assertion, his flashes of insolence, his leadership in practice, his name in public life, was just what they wanted. Long after the passing of the Act, their ill-will

pursued him, and a lot of nonsense was put about—he was playing to the gallery, he was hoping for a peerage, he was in secret understanding with the Chancellor of the Exchequer —to whom he never had spoken a word, except that he was introduced to him on a platform somewhere. But the irony of it: that he should be denounced by the men whom he was helping, and that he who was averse from all compromise should be the victim of compromise. But his profession was not enough of a trade-union to fight and beat the Government over a question of remuneration, nor ever will be, nor ever was intended to be, for it cannot strike: it will always, at the last, subordinate its politics to its ideals.

He writes from Orkney, January 6, 1912, to Dr. Otto May, one of the many who were furious over the disgrace of the mass meeting:

> The United Household is very much pleased with your epistle and its frank criticisms of our vocabularial Conservative friends. It is a great pity that I am still a member of the Council and cannot write to the Times to show up these silly idiots, who I see are now starting a third—or is it fourth? —association. It really has a comic side, although to see our trade-union in the hands of such riotous folk is enough to make the gods weep. I do not yet see the limits of their 'influence,' and cannot yet gauge the loss of prestige which we shall suffer as a profession 'operating' human affairs.

At the end of 1912, he writes to a grateful patient, thanking her for a Christmas gift, a silk necktie:

> Not having ready at hand an adequate stock of adjectives to describe correctly the exquisite new line in ties you sent me, I paused for breath. My efforts at recovery were interrupted by the now unfortunately successful attempts of our Tory friends who run the B.M.A. to commit suicide. As they are all Tariff Reformers, poor things, they naturally cannot see far in front of their noses, and consequently they resolved on Monday (*a*) to violate our six Cardinal Points and pledge, (*b*) negotiate with the insured persons, ignoring the Government.
>
> Clearly they lived in a lotus atmosphere, the world forgetting, for as a matter of fact the insured persons have no spare cash, and the Government was to provide the funds! Can you imagine 182 Bonar Laws in one room talking such

drivel! However, there we are. My only joy is to gaze upon your present with admiration.[1]

He remained on the Association's Sub-committee for the Medical Inspection of School Children; and gave help over this or that point of affairs, when he was asked. But his faith in its Council had been injured past repair. Indeed, if it comes to talking of 'the Great Betrayal,' as it was called in December 1911, we might say that he had been not the traitor but the betrayed.

In 1913, he was still at work over the tangle of difficulties involved in the Act. He writes to Dr. Mary Sturge of Birmingham, February 10, 1913:

> I don't believe myself there are any *substantial* grievances. There are some friction-points, of course, like in all new boots. For the record system, the card-index is I understand to be substituted. I do not quote the East End doctor, but what is a more trying case, namely the country doctor. What the deficit is, if any, we shall find out in the working of the Act; and by the working of the Act alone can we find out. Why imagine results? Let us work and find out the proper figure. The Government cannot refuse it. I shall be delighted to speak; but at present it looks as if the nursery motto of 'Speak when you are spoken to' is best.

[1] At Christmas time, 1913, he writes thanking her for another tie: 'Hardy annuals are most agreeable, and to present needs most opportune and likely to be tested, since I am just off to Norway with my family to a snow hotel 4000 feet up, and where we are told the snow is now six feet deep. I shall without doubt be identified when found by the brilliancy of my tie. So you will have done more than one noble act by your labours and sacrifice. Why you go about, and yet no nimbus discernible, baffles me: but of course we have not employed Mr. Stead's photographer. Probably a well-ordered plate would show the nimbus, especially one of such spiritual character, most distinctly; and no mere ring, but a good 4th century 6-in. broad one.'

VI

The Fight against Alcohol

I

It is a common belief that physicians and surgeons who are opposed to the use of alcohol have slowly made up their minds, by observation of many patients and feeling of many pulses. Horsley made up his mind, in boyhood, by observation of himself; which may be the best way of all. He was reading for one of his examinations, and found that he could read better of an evening if he took neither beer nor wine at dinner. At University College, he and his friend Walter Pearce upheld the cause of total abstinence, in debates and in talk. Doubtless his influence would have been greater, if he had not also been opposed to smoking, and to the use of 'condiments': but any fellow-students who put his abstinence from alcohol on a level with these other abstinences did not properly know what they were looking at.

On October 4, 1882, he gave a lecture to the St. John Baptist Total Abstinence Society, entitled 'Is Alcohol a Food?' This is the earliest record of his lecturing which has come to hand. In 1886, at a meeting of medical students, arranged by the British Medical Temperance Association, he spoke of 'the immense public influence which medical men could wield, both politically and socially, in promoting sobriety.' In January 1887, at a meeting of the National Temperance League, he spoke of experiences of Hospital life: he said that in London 90 per cent. of the injuries admitted on Saturday nights to Hospitals might be attributed to drink: that in two Hospitals known to him every admission, on Boxing Day, 1886, had been due to drink: that as small-pox and rabies were kept down by law, so ought law to restrict the drink-trade.



Map of Southwark Area. From Horsley's Presidential Address to the National Temperance Federation, 1914.

In 1888, a man working with him put this question to him—I have tried to give up both alcohol and tobacco: I find that I cannot give up both: which ought I to allow myself? Horsley wrote back:

> *August* 23. Smoking, of course. But I dare say you don't really care to go back to it: the stale odour is too dreadful. *Re* your consumption of alcohol. You must not misunderstand me. It may be, for aught I know of your internal mechanism, that alcohol may be necessary to you as a drug. If, as it seems, you take it rather as a hypnotic, I would very strongly recommend you to try food instead: and if you can take it I think that there is nothing in the world so good as hot milk and biscuits, about half an hour before bedtime. If this is unpalatable to you, take what you like: but it must be digestible within a short time. Write again when you have made the experiment: but I must not give you much advice in absence of knowing what your constitution is. *October* 22. I am so glad you are better, and so soon. The disappearance of alcohol and tobacco is apt to make their absence painful for months rather than weeks.

In 1892, he became a Vice-President of the National Temperance League; and gave an address, at its annual meeting, on alcoholic paralysis, and on the reduction of the use of alcohol in Hospital practice. He always had a special liking for his chart of the alcohol coming down, and the milk going up, through fifty years, in seven great Hospitals in London: their total annual expenditure falling, in alcohol, from £8000 to £1200, and rising, in milk, from £3000 to £12,000.

In 1896, he was asked to be President of the British Medical Temperance Association.

About 1898, he accepted without reserve the evidences of science that even very small quantities of alcohol hamper the machinery of the brain. Innumerable experiments, by Kraepelin and Aschaffenburg and others, carefully planned and controlled, and extended over a period of ten years, had proved that a dose of alcohol speeds up, for a few minutes, the simpler acts of consciousness, and then retards them for some hours: but it retards the more complex acts right away, without any preliminary speeding up. For

example, it enables a man, for a few minutes, to be quicker at answering a word or a signal suddenly given to him; and then, for some hours, it makes him slower at answering: but it retards, right away, his power of doing sums in his head, memorising sentences, and associating ideas one with another.

On these and the like observations, and on other evidences and arguments, Horsley founded his belief that even those non-abstainers who are strictly temperate are doing harm to themselves: and in 1900, when he gave the Lees and Raper Memorial Lecture, he put the whole case for science against the non-abstainers. The lecture is published in pamphlet form, under the title 'The Effect of Alcohol on the Human Brain.' He began with a statement of his theme:

> I propose to summarise the work that has been done most recently on the effect of taking into the body, not of large doses of alcohol (for we all recognise that as injurious) but of those small quantities which are ordinarily used at meal-times and are spoken of as dietetic.

He described the anatomy of the brain, and the structure and arrangement of its cells and fibres, and showed lantern photographs of them. Then he came to the work of Kraepelin and Aschaffenburg; his own experiments with anæsthetics, long ago, on himself; the use of Kraepelin's tests, which he demonstrated to the audience; the special action of alcohol on the cerebellum; and the degenerative changes in the brains of drunkards. He was careful to say that these gross and ruinous changes occur only in extreme alcoholism; he appealed not to the evidences of the *post-mortem* room, but to the delicate measurements of a man's quickness of response and strength of grip; and to the rather vague deductions which are drawn from the action of alcohol on lower forms of life:

> The practical argument for total abstinence is based on the irrefutable proofs derived from physiological investigation. . . . From a scientific standpoint, the contention which we have so often had put before us by our friends, that small doses of alcohol, such as people take at meals, have practically no deleterious effect, cannot be main-

> tained. . . . We can only come to one conclusion, that from a scientific standpoint total abstinence must be our course if we are to follow the plain teaching of truth and commonsense.

It may be wrong to divide into periods the record of his fight against alcohol: but this lecture seems to mark the end of what may be called his early period. He now had evidences against temperance—we must not play fast and loose with words: total abstinence may or may not be a better thing than temperance, but it is not the same thing as temperance—evidences which to him were 'irrefutable proofs.' They are of no light weight: but he is begging the question. when he calls them physiological. They are physiology vitiated by experimental psychology. His appeal to science is up against the temperate man's appeal to individual experience, to the only life, his own, of which he has first-hand knowledge. By innumerable experiments in psychology, it has been proved, that the equivalent of the temperate man's wine or beer at dinner or supper slows 'ideation'; the adding up of figures, the memorising of sentences, and so forth. The temperate man can still answer, 'But I am fairly sure that it does not slow, but quickens, my evening's enjoyment of music, reading, home-life. I add up and memorise, all day long, in the City: if that be what you call ideation, I say that I mean something different, of an evening, from that.' On this borderland between collective experiments and individual experience, neither the total abstainer nor the temperate man is moving among physiological facts: they are both of them arguing from psychology, the one from observations made on great numbers of men, the other from observations made on himself.

II

After 1900, Horsley led the fight against alcohol in this country. It had many leaders, but none quite equal to him, with his authority in science and practice, his mastery of the art of lecturing, his constant use of a wealth of diagrams and lantern-slides, his courtesy toward his audiences:

he knew exactly how to keep the happy mean between tall talk and condescending talk, and how to answer questions. It is possible that he did not make enough of the fact that our bad habits mostly contain something which must be called our own fault. It is possible, also, that his lectures would have been the better for more lightness: there is a pleasant touch of relief in one of them, where he describes our three most British institutions, John Bull, Father Christmas, and Henry VIII, as examples of fatty degeneration due to chronic alcoholism: but these touches are rare. He was, of course, in great demand; and it is only a few of many occasions which can be noted here.

In 1902, at the 'temperance breakfast' of the British Medical Association,[1] he spoke on the Peel Report. Here, of all questions, he said, was a medical question: yet the Report, from cover to cover, dealt with drink as a purely social question. It was the duty of the medical profession to make everybody see that drink was essentially a question for science to decide. And, as a matter of science, the profession ought to be more strict over the wording of death-certificates: they ought to name chronic alcoholism, in every case where it had been a cause of death: no exact figures of the mortality from drink had been given to the Commissioners.

In 1903, at a Sunday meeting in St. James's Hall, he spoke of the new temperance movement in France; and opposed the policy of compensation in our country: 'Why should we compensate people for doing us harm?' Besides, grocers' licences had been thrust on the community: 'What are we going to do with them? Are we going to compensate the grocers too?' In 1903 also, at the Medical Institute of Birmingham, he gave an address on Alcohol and the Medical Profession. They knew, he said, better than any class of men, the evils of alcoholism; they saw

[1] Long before 1902, this breakfast had become an event of each annual meeting of the Association. He was always keen for its success, and enjoyed speaking at it: for example, in 1892, he denounced the advertisements of secret remedies against alcoholism. It was not an official event, and it needed men like him to run it in the earlier years: he writes so late as 1911, 'I have always till the last two years had to watch its welfare.'

what went on behind the scenes of the social life of the nation; they knew not only that the number of deaths from chronic alcoholism was far greater than the number published, but that moral deterioration from drink came long before the bodily signs of drink: and he thought that medical men ought to take up a much stronger position—that they ought to say, when patients asked whether it would not be wise to take a little alcohol, 'No, it is not wise.'

In Birmingham, Dr. Mary Sturge asked him to meet Miss Lowenstein, who wanted his help to get the teaching of hygiene and temperance introduced into schools, by means of a petition from the medical profession to the Board of Education. He set to work at once; a strong Committee was formed in London, with Sir William Broadbent as Chairman; a petition was sent for signature to every practitioner in the United Kingdom; and Miss Lowenstein came to London, 'to fetch and carry.' She remembers him at Cavendish Square, one evening, coming in just at dinner-time, and asking her to get out some papers. 'The gong will sound in a minute,' she said. 'And why should we waste a minute?' he said; and took the papers to the dining-room, corrected a proof with his left hand, fed himself with his right, and joined in the talk—'it was always easy to him to do two or three things at the same time'—or, as Charles Beevor said, 'Horsley has three brains.' The number of answers from practitioners was 14,118. Then came the long business of a detailed scheme for the teaching of children of various ages; the preparation of a counterblast to Sir Michael Foster's syllabus; and the siege of the Board of Education. 'It took three separate deputations, at long intervals,' says Dr. Mary Sturge, 'before the door opened even a crack. Finally, on the third occasion, after a serious and rather indignant speech from Sir Thomas Barlow, the Minister of Education remarked that he could not understand why anything so obvious had not been done before. Victor Horsley spoke at all the deputations: and, at the last, he gravely urged the Board of Education to appoint a Medical Officer, and described how long the

British Medical Association had desired this improvement. Soon afterwards, Dr. George Newman was appointed.'

In 1906, in Toronto, at the great temperance meeting held during the Association-week, Horsley spoke of the reduction of alcohol in Hospital surgical practice as one of the results of Lister's work:

> I would remind you that the introduction of antiseptic surgery, or rather, its more general use, occurred about 1882. In fact, I am an example of traditional architecture myself, because I was brought up in a septic atmosphere, which gradually developed into an antiseptic atmosphere, and therefore I have seen this change [the reduction of alcohol] in the treatment. . . . I believe that the movement really began with the surgeons. . . . It is one of the innumerable benefits which have resulted from the discovery of a great principle by a great discoverer. Antiseptic surgery rendered unnecessary the treatment of cases as before with alcohol.
>
> It went further than that in my own Hospital. At University College, when I was a student, it was still the custom to give every patient who was going into the theatre three or four ounces of brandy. That was the custom; it was in apostolic succession from the time when anæsthetics were not known. . . .
>
> Then of course as regards post-operative conditions again, during the last twenty years we have had a whole armamentarium of drugs which serve our purpose far better, in getting rid of shock, than anything like alcohol, which has a long-continued and too depressing effect.

In 1907, he and Dr. Mary Sturge published their book, 'Alcohol and the Human Body.' It is a great store, close packed and well arranged, of references and evidences from chemistry, physiology, pathology, psychology, and economics —from the Navy and the Army, industrial life, hospitals, insurance companies, and reports by medical officers of health and public registrars—the whole argument enforced with sayings of men whose names are familiar as household words. Here, at last, was the long-needed supply of munitions for the fight against alcohol. The plans for the teaching of hygiene and temperance to children, over which Horsley worked for years and years, had brought the need of a manual for the teachers: and Dr. Sturge had suggested to Horsley the writing of the book. She says of it:

Forthwith, holiday time though it was, he began to decide the chapters, and settle the scheme of the volume, insisting on putting the nervous system first in the book.

This combined work went on for three years, chiefly on Sundays, when, after a surgical morning at Queen Square and elsewhere, and a dash in the car with his children to look at the outside of the Tower of London, or possibly a walk with them in the Zoological Gardens, he would try to settle down for an hour or so to the book. Mostly, it was written in the drawing-room, while family music went on as an enjoyable undercurrent — interrupted of course by the telephone, and by enquiries from Lady Horsley as to the answers required to manifold urgent letters. Callers were rare in that busy house, although foreigners dropped in, and young medical men, or often Americans who were at the time working in his laboratory: these all received a cordial welcome and were at once included in the family group. On such occasions the junior partner in the book was apt to vanish in despair, to such time as Sir Victor came to look for her and to report either the coast clear or himself willing to work in a quieter room.

We had about equal shares in the work for the first edition: but it was Sir Victor who provided the added matter of all the later editions: he always carried about on holidays—and out to Egypt—a copy of the book, into which he pinned everything that he might wish to add. Requests from India led us to add a chapter on Alcohol and Tropical Conditions, which he wrote, and submitted to Sir Leonard Rogers.[1] For the edition of 1915, he wrote, with much else, the chapter on Alcohol and the Services. Thus, the greater part of the book is of his making. It was a constant matter of satisfaction to him that the Drink Trade, as he always called it, had never been able to refute one line of the book.

Among his papers, are more than a hundred answers to a circular which he sent, in March, 1907, to the Head Masters of our chief schools, asking them (1) Is it the general custom for the boys in your school to drink alcohol (*i.e.* beer, wine,

[1] Sir Leonard Rogers writes to him, from the Medical College, Calcutta, November 29, 1914: 'You may be interested to hear my personal experience. I came out to India just twenty-one years ago; and soon after, when dining with eighteen R.A.M.C. officers, I was asked what I would drink; and when I replied that I did not care for any alcohol, although I have never been a signed teetotaler, I was told I should be dead in a year if I did not take any. I replied that I would see if that was the case or not: and I have never taken any alcoholic drink since. . . . I have rarely worked less than ten hours a day. Of course I have a good constitution: but I am certainly not the worse for having taken no alcohol, and am probably much better without it.'

etc.) or water, at their principal meal? (2) If the use of alcohol is exceptional, what percentage of the boys take it?

By 1915, the year of the fifth edition, 20,000 copies of the book had been issued. It has had influence far and wide. A separate edition was issued for Sir William Hartley to give away broadcast. The Tasmanian Temperance Alliance ordered 400 copies, and gave them to the libraries of all the public schools in Tasmania. A schoolmaster in Oomaru, New Zealand, ordered 20 copies for his senior science form, and wrote to Horsley:

> It is my earnest endeavour to win all the boys (230) of this school, year by year, to total abstinence, and to fortify them with sound scientific arguments. One half the school have already signed the pledge of total abstinence, and the rest will fall into line as our scientific teaching convinces them.

Indeed, the book so attacks and pursues the non-abstainer that it seems to leave him no hole or corner to creep into. There is no refuge for him in the fact that alcohol may be regarded, after all, as partaking, in some remote way, of the nature of a 'food'; the claims of alcohol, *quâ* alcohol, to be called a food rest on the deep scientific meanings of that word, which are known to the physiologists only; he is well aware that he does not take wine or beer as food, and that they do not nourish him as bread and milk and bacon nourish him. Perhaps his best chance is to hide himself in that individualism which science is apt to overlook. He can say that the results of a glass of wine on him are altogether out of the reach of science; he might even say to science, 'Who would have thought, sixty years ago, that the husks of rice—not the grain, but the husks—contain a ferment which is essential to health? Who would have thought that beri-beri, which has killed nobody knows how many thousands of human beings, comes of a diet of rice deprived of its husks by milling? The results of wine on me are just as subtle as the results of rice-husks on a native of the Malay States.' He might thus far dare science to contradict him: but he had better not venture on generalities against this classic of the literature of total abstinence.

In January 1908, Horsley spoke in Belfast at the Jubilee meeting of the Irish Temperance League.

In 1909, the International Congress on Alcoholism was held in London: and he was asked to be President of the International Association of Abstaining Physicians. In January of this year, he gave an address, at Whitefields Tabernacle, on Alcohol and the National Life. It contains his downright statement, 'I mean, by temperance, total abstinence'; and his estimate of a man's right to please himself:

> Our friends take alcohol in small quantities, because it gives them pleasure, because they like it. I want to suggest that such men should reform their ideas of their pleasures, because, when you come to consider the universal goodness of human nature—I am not a believer in the badness of human nature—when you come to consider that everybody has in them a majority of good as compared with evil, it is impossible that such friends can have examined into the question of what really constitutes pleasure, if they go on saying that they take alcohol because they like it as a pleasure-giving substance. There is no real thing in life which may be called a pleasure unless it conduces to the physical or moral benefit of the individuals of our race, and this cannot be said of alcohol.

In the spring of 1910, Miss Elderton and Professor Karl Pearson published, from the Galton Laboratory for National Eugenics, their 'First Study of the Influence of Parental Alcoholism on the Physique and Ability of the Offspring.' They had obtained unexpected results, which confused the issues of the fight against alcohol and bewildered the public mind. An account of their method must therefore be put here.

They describe the difficulties of the investigation; and the ways in which parental alcoholism may affect the offspring. (1) By direct heredity: 'The child is defective, not because the parent is alcoholic, but because it is the product—like the parent—of a defective germ-plasm. The child may be physically and mentally fit, and yet, when adult, may exhibit alcoholic tendencies.' (2) By cross heredity: 'If alcoholism is a mark of a defective germ-plasm, that defect may take one form in one individual of

the stock, and another form in a second. Such associated heredities are well known to the student of insanity and of human deformities.' (3) By enfeeblement of the physique, or possibly of the germ-plasm, of the parents, with alcohol. (4) By poverty, neglect, and unwholesome surroundings at home.

They are not concerned with direct heredity, for they are dealing only with children, not yet of an age to exhibit alcoholic tendencies. Prohibition of the sale of alcohol would not remedy the influence of cross heredity: 'it could only be met by the prohibition of parentage for members of affected stocks.' The evils of alcoholic enfeeblement would be stopped at once by complete prohibition of alcohol. The evils of environment would be met either by complete prohibition of alcohol or by removal of the children from home. 'Surely it is worth while to get some light on these points, before we tackle this great problem of alcoholism.'

Next, they define their use of certain words:

> By the term 'alcoholism,' in this paper, is not necessarily meant the 'chronic alcoholism' of medical literature. We believe that many, possibly the majority, of our drinking class would be found to suffer more or less from chronic alcoholism; they at any rate in the opinion of trained social workers—assisted by the judgment of police and employers—are drinking more than is good for them or their homes. On the other hand, by 'sober' is not meant total abstinence, but cases in which the use of alcohol is so moderate, if it exists, that it does not appear to interfere with the health of the individual or the welfare of the home. Such then is the distinction between 'parent drinks' and 'parent is sober' of the following investigation. 'Parent has drinking bouts' denotes a third well-marked class from the standpoint of the social observer; namely, periodic outbursts of alcoholism, usually marked, when they occur, by more obvious immediate detriment to health, and more intense destruction of home welfare, *e.g.* discharge from employment, or visits to the police court.

They take two sets of statistics: (1) the Report of the Edinburgh Charity Organisation Society, (2) an account of the children in the special schools of Manchester, by Miss Mary Dendy. They examine these evidences, point by

point; and they come to conclusions, some of which neither they, nor anybody else, had expected:

1. There is a higher death rate among the offspring of alcoholic than among the offspring of sober parents. This appears to be more marked in the case of the mother than in the case of the father: and since it is sensibly higher in the case of the mother who has drinking bouts than of the mother who habitually drinks, it would appear to be due very considerably to accidents and gross carelessness, and possibly in a minor degree to a toxic effect on the offspring.

Owing to the greater fertility of alcoholic parents, the nett family of the sober is hardly larger than the nett family of the alcoholic.

2. The mean height and weight of the children of alcoholic parents are slightly greater than those of sober parents: but, as the age of the former children is slightly greater, the correlations when corrected for age are slightly positive, *i.e.* there is slightly greater height and weight in the children of the sober.

3. The wages of the alcoholic as contrasted with those of the sober parent show a slight difference, compatible with the employers' dislike for an alcoholic employee, but wholly inconsistent with a marked mental or physical inferiority in the alcoholic parent.

4. The general health of the children of alcoholic parents appears, on the whole, slightly better than that of sober parents. There are fewer delicate children, and in a most marked way tuberculosis and epilepsy are less frequent than among the children of sober parents. The source of this relation may be sought in two directions; the physically strongest in the community have probably the greatest capacity and taste for alcohol. Further, the higher death rate of the children of alcoholic parents probably leaves the fitter to survive. Epilepsy and tuberculosis both depending upon inherited constitutional conditions, they will be more common in the parents of affected offspring, and, probably if combined with alcohol, are incompatible with any length of life or much size of family. If these views be correct, we can only say that parental alcoholism has no marked effect on filial health.

5. Parental alcoholism is not the source of mental defect in offspring.

6. The relationship, if any, between parental alcoholism and filial intelligence is so slight, that even its sign cannot be determined from the present material.

Finally, they sum up. The danger of alcoholic parentage lies chiefly in the direct and cross hereditary factors of

which it is the outward mark: not in the enfeebling influence of alcohol on the parents, nor in the bad surroundings of home. And they end on a jarring note:

> We fear it will be long before the temperance reformer takes this to heart. He is fighting a great and in many respects a good fight; and in war all is held fair, even to a show of unjustifiable statistics. Yet the time is approaching when real knowledge must take the place of energetic but untrained philanthropy in dictating the lines of feasible social reform.

This unhappy flourish of last words not only angered the temperance reformers but provokes the average man. What lines of feasible social reform are dictated by the theory of the continuity of the germ-plasm? The prohibition of parentage for members of affected stocks is not feasible: nor would it be social reform, even if it were feasible.

Among the opponents of the memoir were Professor Alfred Marshall and Mr. J. M. Keynes, Dr. Ryle, and Dr. Maurice Craig. For some months, Horsley kept out of the controversy. But in 1907, a little handful of medical men had spoken up, in one of the medical journals, for alcohol: this casual statement of their opinions had been used to bait public-houses: and Horsley may have feared that the memoir also was being used for this vile purpose. When he did enter into the controversy, he and others carefully ransacked the Edinburgh C.O.S. Report, to get the exact family-history of the 1400 school children included in it. Dr. Sturge writes that 'they had imagined that at least a sprinkling of real teetotalers would be found—parents who had abstained from alcohol for some years before the birth of their children. But it was discovered that the real teetotal family, where both parents were abstainers in this sense, was practically absent from the Report.' That was Horsley's strong point against the memoir: as he says, in the National Temperance Quarterly, September 1910:

> The enquiry purports to differentiate between alcoholic and non-alcoholic parentage; yet there is no indication as to whether the alcoholism had set in before the offspring were born! When children aged fourteen are being investigated, we require to know the habits of the parents fifteen

or more years previously! Yet this simple precaution has been entirely overlooked.

Toward the end of 1910, the authors of the memoir published their defence, their 'Second Study.' They say that the question, as to the habits of the parents before the children were born, is left unanswered by several writers on parental alcoholism, whose opinions none the less are quoted by Horsley as of the utmost authority. They say also that the solution of the difficulty raised by him and others

> could have been found by them at once, had they studied the data in our memoir. Of the alcoholic parents, a slightly *larger* percentage of the offspring falls below five and seven years of age than in the case of the sober parents, 30 per cent. as against 27 per cent., and the ratio of the number of children between five and seven to those between twelve and fourteen is for *both* drinking and sober parents 1·6. But if the parents only became alcoholic to any sensible extent after the birth of their children, it will be clear that the ratio of young to old children in the case of the alcoholic must be very different from what it is.

In January 1911, Horsley and Dr. Sturge published their answer, 'On some of the biological and statistical errors in the work on Parental Alcoholism by Miss Elderton and Professor Karl Pearson.' This answer produced a 'final answer.' The position of the opponents, at the end of the controversy, is for experts to judge. There was not only the deadlock between the passionless mind of eugenics and the passionate mind of the fight against the drink-trade: there was also the want of agreement over the meanings of words. To the authors of the memoir, the temperate non-abstainer was 'sober': Horsley was inclined to call him 'alcoholic.' As Dr. MacNalty has written:

> He hated compromise; and the *via media* in life, which so many men prefer to traverse, was an abomination to him. I was working one evening at the microscope in Cavendish Square, and Sir Victor was discussing with Lady Horsley the question of obtaining some signatures to a memorial on Temperance Reform. The name of a distinguished surgeon was suggested—a most temperate person, though not a total abstainer—but Sir Victor shook his head, with the comment, 'He is an alcoholic.' I could not refrain

from smiling: he observed me, and his eyes twinkled with fun. 'I cannot help appreciating Mac's keen sense of humour,' he said.

In July 1911, at the Birmingham meeting of the British Medical Association, came a great event of the fight against alcohol, the fifty temperance addresses from members of the medical profession, forty-four men and six women: they were given on a Sunday, and were attended by 15,000 persons. The arrangements in Birmingham were made by the Brotherhood and federated societies, on a plan worked out in London by the Horsleys and Dr. Sturge. Horsley spoke, in the afternoon, on Citizenship and Temperance from a medical point of view; and in the evening, on Unselfishness. He and Lady Horsley had invited all the speakers to tea: he stayed to photograph his great afternoon audience, came in for tea late but very happy, and motored off to his evening audience. The achievement of these fifty addresses in one city on one day was reported everywhere. The doctors, at their great annual meeting, had shown themselves willing to be public teachers. The example set by Birmingham in 1911 was followed by Brighton in 1913, and by Aberdeen in 1914.

III

In the later years, he was not always careful to be civil to this or that man who differed from him. And, as democracy got more hold on him, he began to make more use of this argument against drink, that it was a wrong done to the people by the enemies of the people; a steady poison thrust on the poor by wealthy brewers and distillers, and sold everywhere under the protection of the Government. In the earlier years, he had mostly been concerned with the evidences of science, and with the witness of his profession. In the later years, he was more concerned with the ethics of the whole business; his hatred of drink began to be touched with denunciation of those who made drink, sold it, or profited by it: and he was often speaking to audiences that preferred politics to science.

The number of his political and temperance addresses in the later years, and the range of them, are amazing. Here are two months, from his engagement-books; one before the War, the other during the War:

1913

January	9.	Temperance Lecture: Belle Isle.
,,	13.	Finance: or how money has to be got for nation's needs.
,,	16.	Temperance Lecture at Deal.
,,	17.	Market Harboro' meeting.
,,	19.	(Sunday.) Lecture to South-West Ham I.L.P. Subject, The Feeding of School Children: and Clinics.
,,	20.	Islington Health League.
,,	21.	West Leicester and Harborough.
,,	22.	Quarterly meeting Land Values.
,,	25.	Islington Health League. Lecture on Tuberculosis.
,,	26.	(Sunday.) Plaistow. Lecture on Feeding School Children.
,,	27.	Edmonton Central Hall. Temperance Campaign.
,,	29.	Oxford. Temperance Lecture to Undergraduates.

1915

January	3.	(Sunday.) P.S.A., St. George's Presbyterian Church, Southend-on-Sea.
,,	8.	Temperance League, Paternoster Row.
,,	9.	National Commercial Temperance League, Ilford. 'Total Abstinence the only true Patriotism.'
,,	11.	Address to soldiers and friends, De Walden Ch. Institute, Regent's Park.
,,	13.	Temperance Conference, Caxton Hall.
,,	24.	(Sunday.) P.S.A., Kingsway Hall. 'How to prevent another War.'
,,	26.	Church Lecture Hall.
,,	28.	Aldershot, A.S.C. Theatre.
,,	31.	(Sunday.) P.S.A., Woolwich.

There must be many 'official lecturers' well paid for doing less, though they be doing nothing else.

In 1913, by the unanimous vote of the Executive Committee, he was elected President of the National Temperance

Federation. This great Federation, founded in 1884 by the union of thirty associations for temperance or for total abstinence, has a membership of two and a half millions. At the Annual Meeting in February, 1914, he gave his Presidential Address. He spoke (1) of the danger of 'disinterested management,' with special reference to the superiority of Norway in temperance legislation, (2) of that old grievance, the trade in medicated wines, (3) of the action of the Insurance Commissioners toward the meeting of approved societies on licensed premises. Of the trade in medicated wines, he said that

> The point of view of the medical profession was, that alcohol was being discreditably thrust upon the people *viâ* the medical and nursing profession. . . . The medical profession, so far as it had gone, had cleared itself of complicity in this dreadful business. The British Medical Journal had refused to insert advertisements of these wines: but it had done more, it had published analyses of them, and had invited the general press to insert its advertisements of exposure; but many leading papers had refused. There was really no protection for the public, except by the action of the medical profession.

He soon had further ground for complaint: for in June, 1914, the proprietors of a medicated wine brought an action against some medical men who had published a pamphlet saying what they thought of it, and got £250 damages: they had claimed £5000.

With the War, came the fight against the rum ration. He was in the wrong here: he spoke and wrote in a style unworthy of him: besides, the attempt of the Temperance Societies to stop all issue of rum to our men at the front ought never to have been made. He was quick to admire everything else that was being done for the welfare of the Army. 'The present campaign,' he wrote early in 1915, 'with the single exception of the rum ration, has been fought on physiological and, one might almost say, on ultra-scientific lines. Everything that human science can suggest has been brought into play by the nation.' But he was horrified by the evil, in the winter of 1914-15, of the heavy drinking everywhere, the increase of drunkenness among

women, the crazy treating, all the steps of that dance on the edge of a precipice—to him it was heartbreaking: no wonder, that he fought furiously. On October 13, he said at a meeting in Manchester:

> I ask you to get the Government to help the Army, and not to hinder it. We are allowing another army to hang on our flank, to rob us of our reserves—the army of brewers and distillers. In peace time they kill 60,000 every year. The enemy put horses into the wells to poison the water for our soldiers, but one of our Government departments sends out poison to put into the bodies of our men. I have been told on unimpeachable authority that contracts are now entered into for 500,000 gallons of rum, and yet every one knows that that stuff spells defeat for the British Army. It saps the energy of the soldier, confuses his senses, spoils his shooting, but, above all, destroys his morals and his discipline.

In October, also, the National Temperance Federation sent out a memorial, signed by Horsley as President and Mr. Guy Hayler as Hon. Secretary. It set forth 'the contention of the Federation, that the rum ration should be immediately abandoned, and a ration of hot refreshing and sustaining food supplied in its stead.' It backed this facile advice, as follows:

> It is certain from the experience of previous campaigns, as well as from the teaching of all scientific facts, that the wonderful withdrawal of the Expeditionary Force from Belgium to the Marne would have been gravely endangered if rum rations had then been issued to the troops.

A well-known Member of Parliament, to whom the memorial had been sent, wrote to correct this statement: he quoted a letter from a friend in the Irish Guards, wounded about the fifth day of the Retreat to the Marne; who had said that but for the rum ration at night he did not think the retreat could have been accomplished:

> The first time that rum was issued to us was after the retreat from Landrecies. We had a very long march on the top of stiff fighting, and were very done. We had also lost our kits and had to sleep on the bare ground, which was wet. The tot of rum which was served to us, 75 per cent. diluted with water, made us feel warm and sleepy. When I was with the troops it was not served regularly every

night, only when one had had a very bad doing and needed it, and it was always diluted by the Quartermaster. I cannot tell you the immense difference it made to one's comfort.

On this correspondence, Horsley commented :

On looking at our Memorial again, I see that we did not say anything definite, but that the Retreat '*would have been* gravely endangered if Rum Rations had been issued to the troops.' Our information was to the effect that none was given. He now says *Some was*. Our comment will be, Was it ? Then we are sorry to hear it, for it grossly endangered the Retreat, and NOW we understand why there were 8000 missing ! So we have him both ways. I am very glad now, as I do not trust him. . . .

On November 6, he wrote in the Manchester Guardian :

Rum rations are being issued not only to the troops in France but to the recruits in England. The Army contracts last month, as I showed in the Free Trade Hall on October 13, amounted to 500,000 gallons. The rum is not issued as a drug at all, and no ' doctor's prescription ' is ever written for it. It is issued by the quartermaster's department as an intoxicant, and even only one-half of the amount given to each soldier causes a falling off of from 30 to 50 per cent. in the accuracy of his shooting, besides other depreciation of his efficiency.

On December 3, he wrote to Admiral Sir George King-Hall, on the rum ration, and on the popular fallacy that drinking water, with spirit added to it, cannot convey infection :

Many thanks for your valuable letter, which came as a refreshing counter to another I had from a hard-worked clergyman, who had been told by an officer that the men in the trenches '*must* take their rum to continue alive during exposure in the trenches ' !

This really ridiculous as well as false statement is entirely due to the most recent Army Regulations — see 8/Allowances/89, 1914, p. 16, Reg. 34—which says the rum ration ' may be issued under the authority of the G.O.C. when certified (!) by the senior medical officer to be *absolutely necessary* for safeguarding the health of the troops ' ! !

When such outrageously false statements are made in the King's Regns., a poor clergyman may well believe all the yarns he hears from the front.

> The point you raise is another well-worn mis-statement. The fact is, that water containing infective microbes *cannot be sterilised* by adding the rum to it. The best case I know of was during the Caterham epidemic, 1879. A groom rode into Caterham from a place 10-12 miles off, and drank a glass of whisky and water. He returned forthwith to his master's house, and punctually on the tenth or eleventh day developed his typhoid, to the extreme astonishment of every one, especially his doctor, who worked out the cause. I hope you will denounce this cruel and dangerous fiction.

On January 9, 1915, at a temperance meeting at Ilford, he spoke of the great decrease, of late years, in the amount of rum issued to the Navy : the rule had come into force that every sailor desiring the rum ration must apply for it, and that those not applying should receive $\frac{9}{16}$ of a penny a day instead of it :

> Rum drinking in the Navy was dying out ; and this was shown by the fact that the log in days gone by was marked T against the extraordinary person who was a teetotaler, but to-day the letter marked in the book was G showing those who required grog.

This month was a heavy uphill time : as it is noted in his letters to Mr. Hayler :

> *January* 12. I received a telegram last night from Boulogne that my second son was there wounded, and I must see him to satisfy myself. My intention is if possible to return by the afternoon boat. *January* 19. This wretched Influenza has washed out of my memory many things, including the enclosed draft. *February* 2. Unfortunately, having to give addresses and lectures when not quite recovered from an influenza attack, I am now *hors de combat* with acute pharyngitis.

On January 30, he published in the British Medical Journal his article, 'The Rum Ration : the alleged responsibility of the medical profession for its reintroduction.' It was reprinted, and quoted everywhere : letters thanking him for it came even from the United States, India, and China. It begins with an account of the introduction of rum into the Army :

> The spirit-drinking habit was first contracted by the British Army in Flanders during Marlborough's campaign at the beginning of the eighteenth century. . . . It was

> during the eighteenth century that the spirit ration became part and parcel of the soldier's diet, and hideous punishments—that is, floggings and other tortures—were inflicted in order that discipline (so-called) should be preserved among the unfortunate men whose *morale* was ruined by the rum given to them by their superiors.

Then, the evidence, early in the nineteenth century, of Sir James McGrigor, Inspector-General Fergusson, and many others, proving grave harm done to the health of troops by the issue of spirits. Then, the Crimean War :

> The disasters of the Crimea campaign, in which rum was regularly issued, and the effect of many years of condemnation and protests by military hygienists and authorities, caused a cessation of the rum evil until about thirty years ago, when the rum ration was specifically declared by the Regulations to be reserved for the exceptional occasions of flying columns. Even in 1897, the issue of rum was made under the Army Regulations, and each ration was obliged to be paid for—namely, 1d. by the man receiving it . . . The pernicious rum ration is now completely restored to the Regulations and dietary of the soldier, to his injury and ruin.

He criticises and condemns the rule as it stood in 1915. ' The rum ration in France,' he says, ' is not issued on " very exceptional occasions," but every day ; and in one case which has come to light it was issued twice a day. The practice differs according to the views of the officer commanding a unit ; but from being sporadic, as ordered in the Regulations, it has now become epidemic and constant up to the present date.' Finally, he gives a list of its ill-effects :

> The following physiological effects have been observed by military and naval officers to follow from the issue of the rum ration :
>
> 1. Decadence of *morale*. Causation of grousing, friction, and disorder.
> 2. Drunkenness. Punishments. Degradations in rank.
> 3. Decadence of observation and judgment. Causation of errors and accidents.
> 4. Loss of endurance and diminution of physical vigour. Causation of fatigue, falling out and slackness.
> 5. Loss of resistance to cold. Causation of chilliness, misery and frost-bite.

6. Loss of resistance to disease (particularly those occurring under conditions of wet and cold), namely, pneumonia, dysentery, typhoid fever.
7. Loss of efficiency in shooting. (Half the rum ration causes a loss of 40 to 50 per cent. in rifle shooting. The Navy rum ration causes a loss of 30 per cent. in gunnery shooting.)

That all these evils, and increase of the difficulties our men have already to contend against on active service, are the direct and invariable result of issuing the rum ration is, of course, well known.[1]

But who are the military and naval officers? Are they of to-day? How many of our officers, in 1915—let alone 1918—would say that grousing, friction, disorder, drunkenness, punishments, degradations in rank, decadence of observation and judgment, fatigue, falling out, and slackness, are well known to be the direct and inevitable result of issuing the rum ration?

About this time, he spoke at Eastbourne, Cambridge, Fleet, Ipswich, Leeds, and Huddersfield. He was angered, with some reason, by the official statements in the House of Commons, March 1915, as to the difficulty or impossibility of providing any alternative for rum to our men in the trenches.

On the eve of going to France, he writes to Dr. Saleeby, March 27, 1915:

> I cannot, alas, help you. I quite agree, and see that vodka's character is going to be put on a level with other

[1] When he says that the rum ration causes grousing, he means of course that men grumbled if they did not get it: for he writes to a friend, December 14, 1914, 'I wish the W.O. people were at the bottom of the sea, for I hear the men grouse most abominably on the days when no rum is issued.' For loss of efficiency in shooting, he had as evidence (1) the 'grog-curve' worked out by Captain Ogilvy, R.N., Gunnery Instructor to the Navy, (2) the experiments made in the Swedish Army, by Staff-Surgeon Mernetsch, on a large number of non-commissioned officers and men, under varying conditions, and over long periods of time. Some sort of answer to these evidences was attempted by a little society called the 'True Temperance Association,' which made a few rather worthless counter-experiments. But the issue of the rum ration was not intended to meet the need of accurate marksmanship. I had the honour of knowing a man who for nearly three years served as a stretcher-bearer on the Western Front: he was killed in Bourlon Wood; I know that he believed that the rum ration was not altogether useless: and I put this young Sir Galahad's experience above a thousand experiments not made under the conditions of actual fighting.

spirits which are accused of poisoning people not because they contain alcohol, but something extra, namely *x* an unknown quantity. One of the worst offenders in this particular was a medical officer on the West Coast, in the Report to the Colonial Office. Unfortunately I am going to-morrow to France to take up duty there, and so am quite off the chance of finding out about vodka, but I will about absinthe. *Re* Alcohol and the Human Body, we have just completed (practically rewriting) a fresh edition. The racial part *always* was obsolete and just patched. I am just considering one rewritten chapter and shall be glad of your suggestions. We are in some complex conditions with the publishers *re* all these changes, but hope to struggle out. Thanks for your enquiries. Our boy is here. I have picked out the pieces of shrapnel from his head, and it is doing well. The other boy has healed and gone back. Curses on the Kaiser.

And there are two letters, one from Alexandria, the other from Mesopotamia. They were written, one a few months, the other a few weeks before his death. They are put here in full: the first of them has already been published with a dozen alterations calmly made in it; and it is better to put them in full than to hint at them 'by pronouncing of some doubtful phrase.'

1. *To Mr. Guy Hayler. From Alexandria, Jan.* 17, 1916

I do not know what Resolutions your agenda paper may contain, but I hope one will be passed asking the Constituent Associations to put renewed pressure on the Government and Lord Kitchener and the Army Council to withdraw the rum ration, and to amend the Regulations.[1] As regards this second point, I believe that a Petition to the King will also be necessary.

My point is that the rum ration is not only a gross injury to the rank and file, but it constitutes an officially sanctioned excuse for the officers' disloyalty in refusing to follow the King's example.

The position in point of fact is worse than disloyalty, and really amounts to insult to His Majesty as titular head of the Army, for whisky and liqueurs are the rule in all messes

[1] Before 1916 was out, the rule came into force, 'Rum is only issued to the troops at the discretion of the General Officer Commanding on the recommendation of the Medical Officer. When an issue of rum is ordered for troops serving with the Expeditionary Forces in the Field, individual soldiers who have an objection to the spirit may be supplied with cocoa or chocolate instead.'

at all hours. Morning visitors, even on duty, are offered a whisky and soda as a matter of course. As a typical instance of demoralisation due to the officers drinking, the following is sufficient. The Hd. Qrs. Staff closed the bars in Cairo to the rank and file at 5 P.M. during the Christmas days. This nearly caused a mutiny, not because the men wanted more drink for themselves, but because, as they said, they could not stand the sight of the officers drinking heavily in the hotels after the appointed closing time. The men set fire to a Staff motor car outside the chief hotel. Of course this is the country of cheap alcohol, and Cairo and Alexandria reek with whisky and every form of vice.

The British Medical Journal last summer entered a protest against the scandalous whisky drinking among the officers of Kitchener's Army training at home. These men we are now getting out here.

The lack of moral courage always has been the bane of every army, and the result of it is shown in the neglect of the men's comfort and health. The further result, of course, in a pestilential place like this, is a heavy sickness rate and a steady loss of fighting efficiency.

Our enormous loss (about 5500 men crippled and dead) from frost-bite and cold alone was due to several factors in which alcohol not only played a prime part directly, but, in my opinion, the neglect of the personal care and treatment of the men (which also was a large factor) was due to the idle satisfaction which whisky drinking produces and leads a man to let things drift a bit.

The medical considerations in army affairs are so entirely regulated by the combatant staff that if these officers are rendered somewhat lazy by whisky, then, seeing they are absolutely ignorant of healthy principles also, the inevitable consequence is the ruin and destruction of the private soldier, about whose fate many of them are absolutely callous and indifferent.

2. *To Mr. M. Fraser, Bon Accord, Winnipeg. From Mesopotamia, May* 15, 1916

I am extremely obliged to you for your Military Poster. It ought to be in the office of every Minister and official responsible for carrying on this war. That is to my mind the most distressing part of these campaigns. The directors of military operations are practically all whisky drinkers, and therefore wish the soldier to drink too. Out here in this torrid climate they actually still issue rum instead of food and sterile water, and as a result we now have cholera, dysentery, and diarrhœa to contend with. Any one would

suppose that no military surgical history had ever been written or published.

Our gross failure and stupidity are in my opinion due to the whisky affecting the intellectual organs and clearness of our leaders. Of course they do not realise that alcohol in small doses acts as a brake on their brains. If they did, they would have sufficient loyalty to follow their King's example.

Fancy to yourself the position. The King is the head of the Army. As he went teetotal for National safety, every military mess ought to have followed him. Not one did! It is a repulsive exhibition of selfishness and luxurious treachery to our Country.

VII

Brotherhood Addresses

He had desired to be in Parliament, that he might be able to do more for democracy, and for his profession : he would have worked hard on Committees : and he would have taken his place, outside the House of Commons, as a man elected to speak with authority to decisive audiences. If he had been returned in 1910 for the University of London ; if he had steadily submitted himself to the limitations and the discipline of the House ; if he had lived to now—there is no saying how high he might have risen in the world of politics : he might well have been put at the head of the new Ministry of Health, and would have done enduring work for it.

Market Harborough had spoiled everything. It had thrown him over : and this reverse had come when he was at the worst of his unpopularity and was giving offence right and left. He was kept out of one thing after another. Quiet little committees, with nobody on them whose record in science and practice could hold a candle to his, were of opinion that they would 'get on better without him.' Neither his own profession, nor the professional politicians, dared to play him for all he was worth. Opportunities were entrusted to lesser but safer men : and he was left, in the world of politics, to find his audiences for himself.

It is waste of time now to be wishing that he had not been so lavish of his presence. He was aristocrat turned democrat : he had the convert's zeal : he was content, or more than content, even with audiences which were not half good enough for him. Of course, he never got to be altogether one with his hearers, nor to be wholly unconscious that he was in rather strange company : he went to them as their

leader, not as their 'comrade': and they, happily, were loyal to him, and proud of his leadership.

Some of us, disliking his politics, hardly troubled to study his principles. We are able now to dig down closer to the foundations of his political faith: we have the rough notes for his Sunday afternoon addresses at Brotherhood meetings, 1912-15, and other similar meetings. They are incomplete, written in haste, words doing duty for sentences, his pen rushing across half a dozen sheets of folio paper in the loose far-flung hand which was 'Horsley all over': but on this or that occasion they were written with more care, not on paper but on small cards.

The Brotherhood Movement arose in the Free Churches, some thirty years ago, out of their P.S.A. (pleasant Sunday afternoon) meetings. The Brotherhood now has a membership of half a million. Its motto is, 'One is your Master, even Christ, and all ye are brethren.' Its intention, 'To be non-sectarian, and to know no party politics.' Its ideal, 'To win the people for Jesus Christ. To lead men and women into the Kingdom of God. To unite them in Brotherhoods of Mutual Help. To encourage the study of social science. To enforce the obligations of Christian citizenship. To promote the unity of social service. To promote international brotherhood.' The Report for 1916 says of Horsley that he had been 'among the greatest of Brotherhood men—apostle of the war against disease and alcohol on our platforms, member of the London Speakers' League, a man to whom some of our leaders were looking as a potential National President.'

Sometimes, for an address, he would take a special subject: for instance, the Guilds of the Middle Ages; or would speak on behalf of some special fund or institution. More often, he took a very wide range: for instance:

Sympathy in Public Affairs.
The Responsibility of Manhood.
National Progress and Unselfishness.
Christian Basis of Human Action.
Self-Sacrifice.
Brotherhood and Socialism.

His rough notes for these addresses must look amiss in print: but they so clearly show his mind that they may be useful here.

Sympathy in Public Affairs. (Leicester, 1913)

Am I my brother's keeper? Yes. Sympathy through all. Christian ideal. . . . People say, 'That 's not my business,' and 'What is everybody's business is nobody's business.' We have to negative this. What is everybody's business must be attended to by everybody. For that, every one must be a citizen. Public affairs can only be well carried on by the citizens, actuated by sympathy. Men and Women enfranchised. Franchise a Public Affair. Sad want of sympathy on the Franchise. Propertied men saying to the poor man and lodger, 'You are not fit to have a vote.' Some men say to the women of the State just the same. Not a little Hypocrisy *re* Violence: people, true patriots, lose control when the authorities are purblind to National Progress. . . . Vista of National Progress: men and women in sympathy voting for and carrying progressive legislation. Want of sympathy due to Individualism. We must constantly remind ourselves we *are* our brother's keeper: every time we see a slum, register vow to help legislation. 'We live in an Empire where the sun never sets, and in slums where the sun never rises.' Every time we pass one of those vortices of illness, misery, and death, the doors of a drink shop, resolve that day to help the starving and suffering children of our city. . . . Business of the World: relation between Nations. Detestable attitude of our Jingoes: equally detestable attitude of the Junkers in Germany. . . . Montaigne's position 'The honourable Vocation is to work for the commonwealth and the profit of the many.'

The Responsibility of Manhood. (Ferme Park, 1913)

Responsibility of Each. Xtian Sociological Scheme. Description of World, St. Luke vi. 21-38 incl. The world full of offences 'for it must needs be that offences come, but woe to that man by whom offence cometh.' Xtian view. Instances of realisation of manhood responsibility. (1) In 1643, Cromwell wrote, acknowledging men, arms, and subscriptions, 'Sir, I understand by these Gentlemen the good affections of your Young Men and Maids, for which God is to be praised.' (2) In 1682, Cromwell was dead. Degraded Stuart dynasty restored. Clear to all that not

only was Charles the Second's Court Inferno of Corruption, but King's successor would establish Inquisition and attack Protestantism, strength of Nation. Taunton (siege, war) supported principles of Liberty of Subject and, above all, Liberty of Conscience. An Humble Address of the Young Men of Taunton to Edmd. Prideaux and J. Trenchard—members of Parliament who had made a good fight against the attacks of the Court Party on Liberty and Protestantism: 'Sir, Though we are not immediately concerned in the electing Members to serve in Parliament, yet we are deeply sensible that we shall bear an equal share with others in the same common danger and universal slavery which Hell and Rome have been and still are attempting to involve our Protestant nation in.'

Read George Fox's Journal—a record of incredible hardships and suffering: a man repeatedly in prison and, like many reformers, 'bound over to good behaviour,' when explaining and advocating *Xtian Principles*. Fox's record even exceeded by the prison treatment of Parnell. Treatment of Wesley.

The Christian view of Citizenship knows no class, nor distinction of sex, nor differences of rich and poor. In the Christian scheme of life, all are equal. Surely, greatest stability secured when the Nation links to itself all its Citizens, men and women, with threads of equal tension. And while all are morally speaking equal, the responsibilities of all are equal. This is the true Polity of Citizenship.

Christian code requires equality and justice *between* the sexes: between everybody. Our law gives neither equality nor justice. The gross inequality has caused Divorce Commission to report for its removal. Yet actually Lord —— dared to claim a dual code: one grade of morality for women, and a lower grade for men. Fortunately the Commission treated him with contempt. Surely an acknowledgment of the Responsibilities of Manhood will stimulate us to strive for this Higher Equality of Citizenship. . . . We are progressing towards the Light. I confess I have little patience with those who talk of Decadence. I see no sign, but, on contrary, recognition of Responsibility. Times' leader, October 3, 1913, on Woman's Part in Life. 'When women maintain the standard of sexual morality for men is lower than their own and needs raising, it is impossible to deny the charge. . . . This is not a question of puritanical interference or bigotry: it is a question of life. Vice is hostile to life: it is death. . . . Life is the ultimate reality that we know, and the one test of what is good and desirable is whether it serves life or not.' No paper would have published a passage like that, five years ago.

Christian Basis of Human Action. (Upper Holloway, 1912)

Faith, Hope, Charity—greatest of these is Charity. Faith in Principle. Religious opinions differ, but P.S.A. movement stands for Faith in *Principles*, as against Expediency. Hope: striking feature of true religious feeling: firm hope in upward Progress. Cannot understand people without hope. Teaching of Science—incessant progress and development—breeds hope, creates hope: hope that is justified. Charity, what it is, what it is *Not*—attempt to undo Evils that ought never to have been created. True Charity. Principle of the P.S.A. movement—For God and Humanity—*i.e.* Personal service in Social Work, helping others. Pessimism: low views of Human Nature. Parkes: Law: Lord Salvesen: Article ix., 'Man is of his own nature inclined to evil': Lord ——: and ——: example of a large number of people who have lost Spirit of Charity, says we are living at the *end* of a Great Period. People more humane, kinder, much keener realisation of Duty towards our Neighbour: sympathy with Progress and Principle—evidence of Coal Strike. Splendid example to us of man just dead, Lister. Consider his position—a Quaker—home surroundings—plunged into atmosphere of dirt and suffering—state of hospitals 'sickening and heart-rending'—did not become a Pessimist: an Idealist in Charity, Simplicity, and Sincerity, strong in faith of Progress 'for God and Humanity,' knowing that the one requisite is Principle . . . no pessimist, but an optimist, and above all a worker: never lost faith in Mankind, nor in our physical and moral progress: thus, firm believer in, and practitioner of, Charity in its highest development. We must see to it that Statesmen are not led aside by party feeling but shape legislation on the lines of true Charity, namely Social Betterment. This is the work and Influence of the Brotherhood Movement. Personally I consider this is the real trend of most modern Politics, and that we are indeed on the Upward Path. . . .

To this transcript of some of his notes, may be added some of the passages of prose or verse which he used to quote in his addresses. He took them from many sources: and they are put here without attempt at arrangement:

Fate holds her best gifts till we show
We 've strength enough to make her let them go.

God make the Nations see
That men should brothers be,
And form one Family
The wide world o'er.

The years are slow, the Vision tarrieth long,
And far the end may be :
But one by one the fiends of ancient wrong
Go out and leave us free.

Too long the gulf betwixt
This man and that man fixt
Yawns yet unspanned ;
Too long that some may rest
Tired millions toil unblest :
God save our lowliest, God save our land.

Look not mournfully into the past ; it comes not again. Wisely improve the present ; it is thine. Go forth to meet the shadowy future without fear and with a manly heart.

Du summat. Du good service if you can. But du summat.

All men are by nature equall made all by one worckman of lyke myre, and howsoever we deceave ourselves as dere unto God is the poorest begger as the most pompous prince living in the Worlde.

(*Book of Ordinances, Bricklayers' Guild*, 1400.)

They helped every one his neighbour, and every one said to his brother, Be of good cheer.

(*Motto of London Trades Newspaper*, 1825.)

In a Country like this, where the public business of the State is the private duty of every citizen, those who decline to use their political power are guilty of treachery both to God and man. (*Dr. Dale.*)

It is plain that these Brotherhood addresses were very grave discourses. There is something of the spirit of Kingsley in them, and of Ruskin : whom he calls ' the great master of sociology.' He is hopeful ; he praises ' optimism,' and rails at ' pessimism ' : but he does not push his hopes in advance of his facts. Admiration of the heroes of Protestantism ; familiar use of the Bible prophets, the Psalms, and the sayings of our Lord ; contempt for the old-fashioned talk about Christian resignation ; rage at the ill-treatment of children—' killed, violated, starved, tortured '—and at fornication—' Dead Sea fruit, full of bitterness and corruption ; we men escape condemnation, whereas woman realises truth, wages of sin is death '—all these are in him ; and he gives them a Christian setting ; and they would have

it of their own accord, if he did not give it to them. For him, Christianity was Christian ethics and social service: these he took and worked into the fabric of his life: what he did not feel to want, he did not care to take, nor to provide for his children. His ignorance of questions of doctrine shows itself in a letter, so late as 1916, where he refers to a well-known man 'who did not believe in the Immaculate Conception, or some theological central point, but nevertheless was, and maybe still is, a Canon of the English Church.' He did not understand 'abstract thought.' Such little time as he allowed himself, of an evening, for any reading outside science and practice, he loved to give to archæology and old maps, to anything and everything about Ancient Rome, to history, biography, books of military campaigns. (He hardly ever read a novel: there are not half a dozen references to fiction in the whole of his correspondence: but one of them is notable: he writes to a man in 1889, 'For heaven's sake drop Mr. —— comme une pomme de terre chaude. His novel is simple filth, and of a puerile kind.')

If he had cared to be labelled, he would have written the label himself, Agnostic, in his big masterful hand. One of his nurses tells an amusing story of a lady who went to him, 'because he is the special surgeon for my case: but of course, if it hadn't been for that, I would never have gone to a man who is so *very* agnostic.' It was no part of his plan of his life, that he should be in quest of 'the reason o' the cause an' the wherefore o' the why.' It was not in his temperament: it was not in his education. He had not been through that mill of reading when he was young. It had pleased him well enough, in his University College days, to try to think of the Absolute: but that pleasure does not last long; and he did not find his way, in the later years, to any books which compelled him to listen to them. Popular theology, and sham metaphysics, were utterly distasteful to him; and all the fashionable jargon which pretends to be systematic thought.

It is not likely that he would have determined himself —if he had lived to old age—to cultivate 'the will to believe,'

or to follow up the evidences in poetry and philosophy to the Christian faith. It is possible that he would have thought it merely a sign of the failing brain, to be thus restless for assurance. It may be that his growing sense of the world's iniquities would have driven him to a venture of belief. There was a phrase of his, 'the powers of evil,' which he used very gravely, in the years just before the War: it might have taken him far: but the powers of evil were still on their thrones, the last that he saw of them.

VIII

Private Practice. Home Life

To look at, he was a man created for friendship and for happiness. It was a pleasure to watch his face, handsome and sensitive, with his feelings displayed in it without concealment. He had the grand air; the look of distinction, pride, youth, enjoyment of life: the average man looked sadly commonplace by the side of him. 'I was lucky enough,' says a well-known surgeon, who was his assistant in private practice, 'to be associated with him for many years; and my admiration for him steadily grew throughout the time, and under conditions in which bogus "greatness" could not fail to betray itself. There was in him a hint of the archangel that I never discovered in any other man, and that made one feel that he could never be anything but young and strong.' It is the exact phrase, 'a hint of the archangel in him': or the look of a head of Apollo on a Greek coin: but the upper part of his face was stronger than the lower part. His eyes were dark blue-grey, deep-set, and keen; he had perfect vision, but a touch of colour-blindness: and he and his brother Gerald had a little 'flare' of white hair above the forehead. The tone of his voice and laughter was very musical: and he and Gerald had a way of pronouncing *th* as *v*. In the use of his hands, he was absolutely ambidextrous: he had been left-handed to begin with. He could even draw on wood equally well with either hand. His movements were quick and purposeful. Always, he held his head up and his shoulders back: no tricks, no pose: he was just himself, wherever he was. He neither showed off his gifts, nor could he hide them; and when he came into a dull roomful of guests, there was an odd effect as if the lamps went up of their own accord.

There are lives, and his was one of them, at which we are able to warm our hands: the pity is, that so many people —it was more his fault than theirs—did not warm their hands but burned their fingers at his life.

In the lesser matter of clothes, he was well dressed, but not under the rule of the tall hat and the frock-coat: and his example helped his profession to get rid of that badge of all their tribe. There was something in the look of his clothes which bespoke his everlasting love of the country: besides, he was the first consulting surgeon in London to use a bicycle to visit his patients, and he could not cycle in a frock-coat and a tall hat. (It is said that Mr. Christopher Heath found him on a Sunday morning cycling in the garden of Cavendish Square, and there and then rebuked him through the railings.) So soon as he had a car, he taught himself to drive and repair it. Dr. Neale remembers an expedition with him, in the early days of his motoring:

> I had a patient in Bournemouth; and Horsley and Risien Russell were to see the case in consultation with me. Horsley could only go on Sunday: so we agreed to Sunday: but he had a new motor, and would not hear of going by train. So, to make sure of getting him, we submitted: and at 6 A.M. started—we three, an American surgeon who was staying with Horsley, and the chauffeur—all five: Horsley drove. At Winchester, something went wrong with the petrol tank. 'You fellows go and have breakfast,' he said, 'and see the Cathedral: I 'll put the motor all right.' So he got under it, and did put it right. We got to Bournemouth, saw the patient, and had lunch. Risien Russell wanted to get on to a consultation at Bath. 'All right: we 'll drop you at Salisbury.' We got to Salisbury just in time to see the train leaving the platform. 'All right: we 'll drop you at Reading.' But on the road from Salisbury to Reading a tyre burst: we had to stop and buy a new one: happily, we had the money between us. We got to Reading about midnight: the last train to Bath had gone: we got to Piccadilly Circus about 1.30 A.M.

Dr. MacNalty writes of later expeditions:

> He always drove himself, and said that he could not bear to sit still and be driven by another. He would start early in the morning, motor sixty or eighty miles, driving himself all the way, and then perform a cerebral operation with unfaltering hand and nerve. He said it blew the cobwebs

of London away, to get out into the country. Meetings at Oxford or Cambridge of the Physiological Society always served as objects for these expeditions: Lady Horsley, and a scientific friend, such as Dr. Janet Lane-Claypon, usually were with us. On my first visit to Cambridge, he insisted on taking me a lightning tour of the Colleges, in the half-hour before the Society met: we did it somewhat in American fashion, Sir Victor striding on ahead pointing out the beauties of Cambridge, with Dr. Batten and myself at his side, while Dr. Charles Beevor followed at some distance behind, remarking plaintively, 'I wish Horsley would not walk so fast.'

One glorious expedition in 1908 I remember especially. It was the end of January, and I breakfasted with him at 6.30: we started off soon after 7 in the big Daimler, and motored to Warminster, where he had a consultation: on the way, we halted to look at Stonehenge: after Warminster and lunch, he showed me the old Saxon church of Bradford-on-Avon: then we visited Bath: and returned, with tea at Marlborough on the way, and reached Cavendish Square at 9.30, having done over two hundred miles.

On a holiday, his love of the country and of open-air life inspired him to get and to give happiness all round. If there be a genius of holidays, it was in him. In the earlier years, there was neither time nor money for more than a few days of tramping or of boating: but he delighted in every mile of them. In the later years, he used to take a big country-house, with land to shoot over; and he and Lady Horsley were incessantly hospitable. There is a pleasant story of one guest saying to another, 'Why, the man 's absolutely selfless.' And he was selfless not only in hospitality but in his will to give up everything at a moment's notice, and travel three hundred miles to London, for nothing, to see a surgeon, a stranger to him, who needed his help.

So many of his friends have written of holidays with him, that two of them must speak here for all of them.

From Dr. Huxley

About ten years ago he and Lady Horsley insisted on the whole family spending Christmas in Norfolk at a shooting-place he had taken: a serious matter, a family of four children besides ourselves. The children were thoroughly spoilt and

the small boys came out shooting: I see Victor now, having appropriated Kit, aged six, with directions to hand his cartridges: the pheasants came streaming over, and up went his gun, with no results except a roar of laughter as he realised that in the excitement of the moment he had been given the empty cartridges. Michael, my next eldest boy, and he carried on a varied correspondence. Victor collected postage-stamps for him, and used to send them in a vast envelope, addressed, on one occasion, to Michael Huxley, Esq., The Corner, The Nursery. Michael addressed his letter to Sir V. Horsley, The Arm-chair, The Consulting-Room.

I met him constantly in work, and learned more from his methods than from any one I have ever known. The kindest of men—he was ever ready to operate on or see the needy folks, with or without a nominal fee; and in all these years I never found his considered judgment of a case at fault. I have seen most of the great surgeons of our time operate, but none surpassed him in dexterity and in care of every detail of treatment. . . .

I think that no one except my father ever cared less for public opinion, as long as he thought a thing was right to do or say.

From Mr. C. J. Bond

For many years I and my family had the happiness of spending an autumn holiday with Victor Horsley and his family. These began with a visit of a few days to Hinwick near Wellingborough, where Horsley rented a partridge-shoot in 1897. After Hinwick, came a shooting at Ashford in Kent: while staying there I persuaded Horsley to take up photography; and I remember the interest which Sir Frederick Bramwell, his father-in-law, took in working out, from the elongated picture of the moon, the relative movements of the earth and moon, from a rather successful photograph. Ashford was followed by shootings at Angmering in Sussex, Pitcaple in Scotland, and various country-houses in Norfolk. It was while staying at Worthing that Horsley persuaded a butcher to allow him to kill several bullocks by shooting them with the Lee-Metford service rifle: he was at that time interested in investigating the explosive effects of bullets.

One delightful fortnight spent by us with the Horsleys in the island of Rousay in the Orkneys, August 1911, ever comes back to my memory. Mornings spent on the moor, or in fishing: afternoon explorations of cairns and old Pictish burial mounds: excursions to neighbouring islands—Eynhallow with its monastery, Egilshay with its ruined Saxon church dedicated to St. Magnus, Veira with its seals,

all were visited and photographed on many occasions. The uninhabited little Holm of Scothess gave us an opportunity of investigating a problem of odd eye-colour in a hybrid race of rabbits which flourished on the island. . . .

These holidays on Rousay, between 1909 and 1914, were full of happiness. He set himself to be useful; he studied, with Professor Meldola's help, the chances of reviving the kelp-industry; the plans for a better medical service in the Orkneys, and the management of small holdings; he was President of the Orkney Agricultural Society, and a Life-member of the Orkney and Shetland Association; and he and Lady Horsley, with Mr. John Logie, were the founders of a Co-operative Society. He writes to Dr. Mary Sturge:

Trumland, Rousay, September 10, 1910. We have had an extraordinarily fine time here. Next year you really must come and see how delightful it all is, and how absolutely free. I am writing this in quite burning sun, in the garden alcove, with honeysuckle, bees, etc.—writing on my knee, which, however pleasantly idle, is not conducive, as you see, to copper-plate style. The boys are in great feather, as the bag of seals, grouse, plover, etc. has been very good, and as they, including a school friend, and I made a raid on the North Isles as far as Papa (early Xtian missionary =papa) Westray, the last but one north. There and at Westray we put up in farms under conditions rather too primitive for some, but which were certainly novel and interesting. We walked all over the islands, found some birds and a great deal of interest: altogether a very profitable raid, which took about six days. We are holding a tea on Tuesday, endeavouring to start a Farmers' Co-operative Society, at a school four miles from here which is the only building on this island capable of holding about 120 people. Orkney is a great place for co-operation, but may be made more so. Altogether socially it is very interesting. The captain of the North Isles little coasting steamer is a leading temperance advocate, Craigie by name. We must send him a copy of the new Edition, or *more Cromwellio* the New Model.

Next to these holiday letters, come letters from patients: they show not only gratitude, but downright reverence, as if the writers could not find words good enough for him: some of them treasure his photograph, or a few lines of his handwriting: they praise his gentleness, sympathy,

generosity, his ' Heraclean cheerfulness and courage.' One could paint a portrait of him, from these letters, as the beloved surgeon ; and it would be a true likeness. But of course the letters fall short of the thing itself. As a letter says, ' One had to *see* that toss of the head, and a sort of flash of interest, sympathy, annoyance, or humour—elusive and indescribable.'

There never was a man who made less of the distinction between Hospital practice and private practice. What he was to his Hospital patients may be judged from three sayings which by chance have been remembered. ' The patients lie and watch for his coming,' said one of the Staff of University College Hospital. ' I think it was through Sir Victor,' said a medical man, whose life Horsley had saved, ' that I tried to be kind to poor people.' And a patient in Queen Square said, ' I do believe, if one of us were to die, and Sir Victor got him within half an hour, he could bring him to life again.'

Foolish or envious people said that he ' advertised,' that he sought popularity, and so forth. None of them is worth answering. It would be nearer the mark to say that he sought unpopularity ; that he was attracted by causes which were in disgrace. As for advertising, he was one of the very few men who never felt the need of it. His record in science and practice advertised him. Even before he was thirty, his profession was talking of him as the coming man. By the time he was thirty, everybody was beginning to talk of him. This is not to say that he was not proud of his work for physiology and surgery ; he was openly proud of it. Nor did he take much trouble to hide his mind, when patients came to him from men who had not done the very best thing for them. But that is not what his profession means by ' advertising.' He was in public life : and the newspapers made it their business to tell us everything about him. They told us, in 1897, that he was going to Russia to attend the Tsar ; not a word of truth in it ; he could hardly write and proclaim that he was not going ; it would only complicate matters : then comes a blackguardly anonymous postcard all the way from Dublin—he

kept everything—'Any other advertising quack couldn't have done better. Bravo Horsley! Advertise away, damn the expense.'

Over his fees, he was very generous. He would not take a fee from a veterinary surgeon: and during the War he would not take a fee from any wounded officer: 'I'm not going to take money from a man who was wounded defending me.' His rule that no medical man should pay a fee to him was absolute. One writes:

> I do hope you will not omit to note specially the immense amount of work he did for his medical friends without any money reward. During a long illness, dating back to 1901, he was always ready and willing to help me when necessary. Once he came down to Ventnor to see me, once he came here; and he operated on me at least thrice. On no occasion would he take any payment: 'Dog does not eat dog,' he said. On one occasion I tried to send him a cheque as a Christmas gift. It came back to me with a note saying that if I wished to continue his friend I must not do it again.

Another doctor, whose daughter Horsley had seen—a hopeless case—away from her home, tried to convey a fee to him through the ladies with whom she had been staying. Horsley found this out, and wrote:

> I gather that you have been awaiting a letter from me in regard to the extremely sad case of your daughter whom I saw last week at Hove. I regret now therefore that I did not write to you, but having in view the fact that I regarded the case as one for which unfortunately nothing could be done, and that I expressed this view quite distinctly to those who were with the patient, I own I rather shrank from communicating to you personally an opinion which I knew could only cause you so much pain. There is just one point further to mention. You must allow me to return you the enclosed cheque. I could not possibly accept it from one of our Profession, and as it is not my privilege to be able to help you otherwise in the case, you must at least allow me this means of showing my desire to be of service had it been possible.

Another doctor tells of a case, near Birmingham, of a boy suffering from basal meningitis: the case was hopeless: there had already been a consultation, and the doctor had wisely persuaded the boy's father not to incur the further

expense of sending for Horsley: but one of the family telegraphed for him. He came at once, took the position of things with infinite kindness and courtesy to everybody, refused to be paid, and went back by a night train: 'one of the greatest men I have known,' writes the doctor, 'whose heart I believe was the greatest part of his greatness.'

A lady, on whom he had operated without payment, went to see him afterwards, and offered him the usual fee for consultation. 'I don't suppose you have been left a fortune,' he said: 'when you have, we can see about fees.' A working-man brought his daughter to him, all the way from Wigan. 'Several friends informed me that he would not spend more than two minutes with me, and that I should not get clear for less than a fifty pounds fee.' Horsley said that no operation was needed, that the girl would soon be all right: then started a talk on things in general. 'When I told him I was a life-abstainer and secretary of a Rechabite Tent, he was delighted, and talked on for over half an hour.' He would not take a fee: he said that he didn't often get the opportunity of having a chat with a working-man.

Another working-man, on whom he operated at Queen Square for cerebral abscess, writes, 'I cannot express in words how kind and generous he was to me and also my friends, and with a patience untiring: I am sure nothing I can say or do can half express my feeling of how grateful I am. Our doctor has sent me a photo of Sir Victor which I shall prize as long as I live.'

Another letter describes his kindness to a small child, on whose head he did two operations:

> Children understood and trusted him at once: he never chaffed or 'talked down' to them, and though very gentle and pitiful, he was always bracing and straightforward with a young patient, and he seemed able to really see from the child's point of view. . . . When a further operation had to be faced, he questioned the parents, 'What does the boy remember about the last time, and what will he dread most? He 's a plucky little chap, and I 'm not going to have him frightened.' When he heard it was the preliminary preparations, and the anæsthetic, the child would dread, he reduced the former to what could be done by the mother almost unaided; and arranged that the child should be

> put to bed at the usual hour, with a dose of trional. Then, an hour or two later, he was chloroformed in his sleep, and the operation took place during the night, to the great inconvenience of the long-suffering staff of the Nursing Home; but the child's peace of mind was secured. . . . When Sir Victor had time, and sometimes when he had not, he would sit down and talk Uncle Remus or Jungle Book, with the keenness of ten years old and the appreciation of a man of letters. And who but he knew the psychological moment when a visit to the Zoo was what a weary little boy needed to make life worth living, and exactly where to go when you got there to find the most attractive beasts, and what to give them to eat?

Other letters describe what may be called his Jungle Book talks with grown-ups. 'Apart from his sympathy and kindness,' writes one patient, 'his intense interest in everything, from trivial schoolgirl incidents to suffrage and political questions, was never-ending and amazing.' Another writes, 'Sometimes he would come into my room in the evening, and talk until he was called away, about temperance, women's suffrage, and above all—Home Rule! He was an ardent Home Ruler, and I had been brought up a Unionist, so the argument was always hot. I kept a photo of Sir Edward Carson in my room: and he would tell me to take it down, as I "never would get better with *him* looking at me." He was especially kind to me, I think, because I was very young and very Irish! He would listen for ages to stories of the peasants and country people.'

If a patient did not really need him, and was in good hands, and was doing well, he would take his leave so soon as he could: and he sometimes gave offence in this way. It looked like indifference or neglect: it was neither: it was the natural result of his confidence in his assistant, or in the practitioner, or in the nurse, to whom he entrusted the case: he knew that they would let him know at once, if he were really needed: and he made it his business not to interfere with them, but to keep in touch with them. It was not in him, to be thoughtless of cases. To somebody who was praising the scenic effects of London, he answered that he never noticed them; that he was thinking of his patients.

It was said of him that he was hard and inconsiderate toward nurses. One of his patients writes, 'I had never seen him, and thought he would be very fierce and alarming. I must say the way he spoke to the nurses confirmed me in this idea.' But a nurse who worked for him for fourteen years in a Nursing Home is able to speak with authority on this point. She says that he may have been hard on nurses who perhaps only saw him once or twice, and did not understand his ways; that of course he had ways of his own at an operation; he insisted that all who were taking part in it should work well together: but he was not hard on any nurse who understood his ways; and, so soon as the strain of the operation was over, he would be courtesy itself. The same is said by a surgeon who knew him intimately: that he would get an idea that a nurse had made a mistake, and from that time he would not have a good word for her; she would be 'not a good nurse'; and if he were in a mood of irritation, he might speak roughly to her: but when he knew and trusted a nurse, he would be charming to her.

In his practice, he was quick to accept any suggestion, if it were carefully put to him; but he had to be 'approached the right way.' If that were done, 'it was so easy to get him to see your point of view, that he would even carry it further; and what you had meant as a suggestion was taken, at last, as a sort of order.'

He never boasted of his power of diagnosis and his dexterity in operating: indeed, he rather made light of them: he said that 'anybody could acquire manual dexterity': and he sought to encourage other men by attributing his success to the fact that he lived in Cavendish Square. To a surgeon starting in consulting practice, he said, 'Now, my dear boy, I 'll give you a bit of advice. Mind you start in the right place: I started in Gower Street: that was a great mistake. Since I moved to Cavendish Square, I 've had nothing to complain of.' He would have achieved success, even if he had put up his name at the base of the Monument and lived in the cage on the top.

But his practice fell off miserably, during the four or five years before the War. Partly, the medical men who thought

that he had 'betrayed' them over the Insurance Act were unwilling to send patients to him. Partly, it was said that he was giving up practice. Partly, there were invalids who so disliked his politics that they preferred another surgeon: indeed, one medical man, who had been in the habit of asking for consultations with him, said now 'that his patients objected.' It was natural enough, after 1910, that strangers to him, who were fearing the possibility of an operation, should hesitate, thinking him 'immersed in politics.' He writes to a friend, Jan. 1913:

> I only saw your kind letter about the boycott yesterday. As regards the general thing itself you are probably correct. What of course is more militant against my doing more practice is the report being industriously circulated—and reached me to-day—that I am retiring from practice. This of course I have known a long time would be done, as indeed it was when I resigned Univ. Coll. Hosp. six years ago. As regards the second point, namely that my surgery is mediæval, that of course is possible, and to avert the true part of that I shall not operate after sixty. This I decided long ago. Doubtless, also, it will choke off work. We must just see.

Under the unhappiness, illness, and overstrain of these years, he would have broken down, if it had not been for his home-life. All of us saw the side of him that he faced the world with: but those of us who did not see the other side of him, the home-life, did not know him. Indeed, it was perfect: it was the making of him and the saving of him. Not that it was leisurely: it was incessantly strenuous: it drove ahead, every day and all day long, toward the attainment of a hundred purposes. He and his wife were of one mind in contempt for whatever things are second-rate, sham, selfish, or wasteful of time or thought: they planned their life, and they lived it, above all idolatry. For many years they refused invitations to dinners and evening parties —which then were frequent and ostentatious in London, and not least in the neighbourhood of Cavendish Square; they did not go to a theatre more than once or twice a year: and when the fashion for week-ends was invented, they did not follow it. The evenings were for work. He read hard;

no man in his profession was better acquainted with the science and practice of his own and other countries. As he used to say, 'I hate having to say "I don't know."' He had the rare gift of enjoying to work with his family round him: one of his friends writes of 'his power of being able to "concentrate" on many things simultaneously: practically all his writing was done in his drawing-room, with all sorts of distractions; yet he could write a paper, dictate letters, discuss sociology and politics, and play with his little fox-terrier, almost in the same moment.' On Sundays, if his work and his popular lecturing would let him, his favourite place was the Zoological Gardens. He was not only a naturalist, he was a born lover of animals: the instinctive understanding between him and them was perfect. There was an amusing example of it, during the trial of the 'brown dog' case, November 1903: a cat found its way into the Court, disregarded the supporters of anti-vivisection, went to Horsley, and sat on his knee with evident pleasure.

What is far more, he was a devout lover of children, and had wonderful influence over them. A young nephew of his, on naval medical service during the War, wrote home, on the news of his death:

> All yesterday I went about in a sort of dream: I really don't know what happened at all. It seemed impossible: and yet, you know, I *felt* that he wouldn't come back again —from the first—I don't know why—but I somehow imagined that for the first time in his life he had undertaken something beyond his strength, and that he would not be able to see it through, even he. As a small boy I used to idolise him in my own mind as almost a god. His figure and agility and youth and health, on the physical side; and his amazing, consummate genius; and his effortless—or what seemed effortless—way of tackling things with almost complete success in the medical or scientific world; and then his astounding sense of duty in everything he did; and his radiant kindness. I really don't know anybody who excited—or rather intoxicated—me from my earliest boyhood, like he did. I remember, every time he used to pay a flying visit to the Lawn in the old days, how I used to count the minutes I spent in his presence, and how I used to treasure every word he said: I repeated his name over and over again, then, which thrilled

me. He seemed to me immortal in a sort of way. Nothing was apparently beyond his reach. I couldn't have borne it, seeing him getting old.

That is what he was to the generation which comes after him. A letter from Dr. Flemming, of Bradford-on-Avon, tells what he was to a friend of his own age :

I found him one day, not long before the War, in his drawing-room ; several dozen lantern-slides spread on a table ; he was arranging them for a lecture on the Great Roman Wall across England, that he was to give at some society next evening : he had taken the photographs himself, and years before had taken part in excavating some of the Wall. While we talked, he ate his simple meal of eggs and bread and butter and tea, excusing himself as he had to go soon to speak at a meeting of some society that dealt with the abuses of ground landlords. It came out that the night before he had been in Oxford lecturing on early brain-surgery ; and had taken the opportunity while there to address undergraduates on temperance. We talked of the coming Aberdeen meeting of the B.M.A., and of matters of medico-political interest to be discussed there ; and he told me that when he returned from his holiday he was going by invitation to Vienna, to open a discussion. He also asked me if I could find out about a XIV. century castle near Frome, Somerset—if they were going to raise money to keep it in repair, as he would like to help.

What always struck me so much, apart from his personal charm and fascination and his genius for friendship, was his extraordinary capacity for finding time and thought for every friend. I was only one of hundreds, quite as it were a casual friend, but he would find time for long conversations, to drive me to the station, to spend a whole Sunday afternoon at the Zoo—can one imagine a more delightful visit there than with Horsley, his knowledge of comparative anatomy and of the habits and characteristics of animals, his evident love for everything living ?

What wonder that he influenced the lives and thoughts of men, and their outlook on life. I doubt whether yet the profession, especially general practitioners, realise how hard he fought for them, how much he did for them. At a time when men were growing dissatisfied with the B.M.A., and complaining that it was too much managed by consultants, here was a consultant *par excellence* fighting for the control of the Association by the general practitioner, fighting then as he afterwards did about the Insurance Act, absolutely regardless of his own interests.

How did he ever manage to be disliked, he who was made to be admired? Envy had not much to do with it: envy and admiration can well keep house together. Nobody could help envying him. How was it that anybody could help liking him?

Some of us, members of his profession, were more solemn than we needed to be in our dislike of his vehemence, his displayed contempt for the other man's point of view. This of all faults has least chance of hiding itself: and in him we ought not to have taken it so tragically. We wanted him to be like the rest of us, and that is just what he was not. We could be content with compromises and measures of expediency: he could not: his motto should have been Brand's intolerable text, All or nothing. He despised expediency, he believed in principles. He did not hold with letting things slide, nor with dismissing them unexamined. If a phrase in a letter vexed him, he would be inclined to 'have it out' with the writer, and would even lecture him in a correspondence of steadily growing exasperation on both sides. Some whom he offended were his seniors, men of high standing: he would speak out his mind as it were *ex cathedrâ*, he would even give the cut direct: it was inevitable, that they should resent his behaviour to them: they had reason enough for saying that he was 'difficult to work with.'

But the young men who worked with him in Hospital wards and physiological laboratories did not find him difficult to work with: they found him keen to help them, lavish of his gifts, enjoying to advise and guide them in their work so that it should tell to the best advantage not for him but for them. And they are but a few of the many of us whom he greatly helped. Let alone all the consulting and operating that he did for love not for money, he was always generous if a gift of money were needed and deserved. And there are men whom he stood by and befriended, year in year out, with steady personal kindness, seeing them through one perplexity after another.

Besides, though he was quick to take and to give offence, he did not set himself to enlist on his side, either in pro-

fessional or in general politics, those of us who were non-combatants: there are many who can look back over thirty years of constant friendship with him, though he and they were never agreed in politics, nor ever desired to be agreed.

Besides, some of us found offence where none was intended; we took seriously his light use of flamboyant words, which were nothing more than the slang of his early years; mock-heroic epithets, to be let off like fireworks. He would call So-and-so a ruffian or an arch-liar or a scoundrel; saying it with a smile and a good-natured shrug of the shoulders, or digging his hands into his pockets and throwing back his head and laughing at the bare image of the man. It was habit: there are scoundrels in a letter of 1881, and ruffians on a postcard of 1882. The trouble was, that So-and-so would not be aware of that: he would only hear that Horsley had called him a scoundrel.

The fact remains, that he alienated men whom he could just as easily have bound to himself in friendship. He was not—in the deepest sense of the phrase—a good judge of men. A physician or a surgeon, by the exercise of his calling, becomes a good judge of those men and women whom he attends; he sees them under conditions of sincerity and of confidence, and sometimes of pitiful disclosure; he is perpetually learning from them: but he may fail to be a good judge of people who have nothing the matter with them. Horsley understood his patients, with insight, sympathy, and gentleness: but he did not so well understand his opponents. We are told that we must observe the distinction between the sin and the sinner: it is not so easy as it sounds: and he did not care to trouble himself over it. If he disliked a line of action, he tended to dislike the man who was taking it; and sometimes would try to defeat him with heavy sarcasm. The action was the man. The action being 'criminal' or 'immoral,' there must be something wrong with the man.

This inability to 'honour all men' was nothing to us, so long as it remained inside the sphere of professional affairs, in comparison with his achievements. None of us could

do his work or take his place. But in the later years, when he carried his vehemence into public life, we had some excuse for looking solemn. Our admiration of him was baulked by what he was saying in the press and on the platform: we took it amiss—'we that had loved him so, followed him, honoured him'—that he was at the mercy of the newspapers.

He might well have borne himself more quietly. For what he was doing was something new, which the rest of his profession was not doing. He was 'creating a precedent': and as he created it in his own image, it was 'a dangerous precedent.' He was abandoning the stately old idea, that a medical man should avoid publicity and be content with practice. Against this old idea, he set his new idea, that a medical man is just as free as any other man to fling himself into open political warfare, and to fight for any cause which appeals to him. The great physicians and surgeons of the generation before him upheld the old idea. They kept themselves to themselves. They were afraid of seeming to advertise, and they were afraid of lowering the tone of the profession. They did not care to go outside the happiness that they found, and the good that they did, in science and practice.

Now and again, they were afraid where no fear was: they would have been more useful to the community, on this or that occasion, if they had spoken out what was in their minds, and had published it far and wide. But they were held back, not only by dislike of publicity, but by the sense that the public did not understand either their science or their practice. Why should they talk to it about things which it could not understand? When they did handle politics—what one of the greatest of them called 'these beastly politics'—they preferred the indirect method: they approached the Government by a circuitous path, as if they were stalking it. They obtained some good results: but it was a slow business. Their interests were represented, more or less, in Parliament; but it cannot be said that their representatives were dominant figures.

Times are changed: and the medical profession is learn-

ing, rather painfully, to adapt itself to the change. We are more willing now to educate our masters, and to throw in our lot with them. Even before the War, some of us were at work on the new lines: but Horsley was ahead of us: he had 'gone in for politics,' he was scattering the past about, like the New Age in Matthew Arnold's poem. Through the difficult years which are coming, whatever public duties may be required of our profession, it was Horsley who gave us a lead in the years before the War.

One more criticism remains to be considered, not of his work in politics, but of his work in physiology; that he was impatient for results; that he ought to have made fewer experiments, and to have observed them more laboriously; that he did not attain Pasteur's ideal of a man of science, who 'must compel himself to fight against himself, for days, weeks, perhaps years; to try to defeat his own experiments; and not to proclaim his discovery till he has exhausted all other possible theories.' But he followed, early in life, three great and well-marked lines of scientific research: on the localisation of function in the brain and cord, on myxœdema, and on rabies. This threefold work, 1884-1893, was all of it early work: the latest of it is a quarter of a century old. Like all research in the natural sciences, it had to be corrected here and there. He took up each subject at the decisive moment; in the nick of time. Everywhere men were talking of cerebral localisation, the thyroid gland, and the protective treatment against rabies. He comes in at the topmost height of our expectations. The adjustment of surgery to the physiology of the brain and cord, the discovery of the action of the thyroid gland, the stamping out of rabies and hydrophobia—all these we were hoping for, and were looking to him to help us toward them. Nobody can say that he failed us. Nobody denies the authority and the staying power of his work for science and practice. He is with Ambroise Paré, Lister, and Hunter: with them, not below them. Paré, in practice, was one of the greatest of all surgeons; but he had only such science as the age could give him. Lister is greatest of all the 'saints laïques' in the doctor's calendar; but

he does not equal Horsley in range and imaginative insight. Hunter was magnificent: but he did not trouble himself over the welfare of the community: he was content with a rather selfish life.

That, after all, is the distinctive note of Horsley's life and work; that he could not rest in all science and practice, but must also be in politics. We have lost a man who was always willing to set aside his own interests for the whole-hearted, full-blooded pursuit of an unpopular cause. We had been with him, followed him, or come into collision with him in the streets of life, always conscious of him, always saying that there was nobody like him: and then of a sudden he was gone, and we were left standing on the old ways of individualism, honourable but unadventurous.

If it were possible to put him in a sentence, he had the supreme gift of delight in the use of all his gifts. He seemed never to be idle, never slack or vague or at a loss for something to work at or admire or fight for. It is the secret of our envy of him, that he was heart and soul in love with life. That is why his death so took the colour out of things.

Like Ajax raging to himself in his tent, and mistaking a flock of sheep for his enemies, he was unwise in his wrath, and would attack harmless people with strange misunderstanding of them. He bewildered and exasperated us: he shook us up: he shone us down. It all comes back to the phrase that there was nobody like him: as it was said of him, at some German festival dinner, 'Und da steht Horsley wie ein Gott.' One can hardly imagine him in old age, slow and infirm and past work: he did not have to face it.

When he died, he was nearing the end of his inventive and imaginative power in physiology and in surgery. He said, not long before the War, to one who complained that he was giving up science for politics, 'It 's all very well; but my brain 's not boiling with ideas as it was when I was thirty.' Some time after 1914, he said to his daughter that he was losing his keenness for research; that it did not stir him, when younger men talked to him of what they were doing. His life was beginning to tell on him. Always, he had taken the responsibility of advising and treating those

who were nearest and dearest to him, even operating on them : it will never be known, save to one or two, what a strain some of these cases put on him. If he had come back from Mesopotamia, he would have devoted himself to the political advancement of national happiness and health and efficiency, and would have done more than any man in his profession was doing.

He, and he alone, had the planning of his life : we had designs of our own for him : but he alone decided how to use up all that was in him. Always, he had spent himself with superb extravagance : he was still at work, the day before he died. It is not in the range of men's intellects, to understand, through and through, a man's life. The real values of it are hid from them, and are not clear even to him. This man, at any rate, played his life for all it was worth : there is nothing that he kept back from us, there is nothing that he feared.

PART III

DURING THE WAR

I. LONDON. WIMEREUX
II. EGYPT
III. INDIA. MESOPOTAMIA



Photo Speaight, London

SIR VICTOR HORSLEY.

I

London. Wimereux

On the Monday, August 3, 1914, he had occasion to write to friends in Berlin, who were looking after one of his patients ; the letters came back ' Undeliverable,' and were put away ; they are concerned with the treatment of the case, but he states in them his first thoughts of the War :

> (1) Of course I think it is wholly unjustifiable, though I appreciate that Austria's difficulty in keeping order in the Balkan States must be very great. Still I do not think that she should have begun war, for it was obvious the whole of Central Europe would start in. As to Russia, no one detests Russia and all her ways more than I do, and it is most disturbing to feel that in any way directly or indirectly one is helping Slav barbarism. My only hope now is that the people of each nation will rise and stop the whole gang of Chancellors and Emperors by wiping them off the scene. But I fear the millennium is too far off as yet.
>
> (2) Until the officials are under the power of the whole people, men and women, this stupid, insane folly of war must go on. I can only hope that as after 1870, Socialism will get more strength and put an end to the arbitrary miseries, injuries and losses heaped on millions of people by their rulers. I remember well in Berlin in 1890 Virchow made a speech at a small dinner I was at, when he spoke of the Russian danger to Germany, and how it could only be opposed really by the German people receiving political liberty. Of course so far he was right, and I trust that this will be the result of the war.

He was too ready with his judgment. It is true that he saw, and said in public, that a state of war brings out fine qualities in men ; he loved to praise the mind of Abraham Lincoln ; and much that he foretold has already come true. But, if we are to go by his letters, he wrote of the War, and of all war, as stupid murderous folly, a sort of criminal insanity brought upon a nation, somehow, by tyrants and

diplomatists, a madness to be cured by democracy and universal suffrage. He is so confident of his ability to judge the War, that he does not realise how the War is judging him. There is next to nothing, in his letters, about the War and the nations, that rises above contempt and invective phrases : one longs for something else—the Greeks had a word for our proper attitude in the presence of the Gods—some confession of faith, humility, ignorance : something to redress the balance.

There is a letter of a very different sort, a curiosity of the War ; it came to him from Germany, a few weeks later ; a good typewritten example of stock letter-writing ; doubtless from an old patient, for it is signed Yours very gratefully :

> Although by this unnatural war all confidence has been destroyed between our two nations I feel that even now an English gentleman will believe the word of a German gentleman. I will put some facts before you and on my word of honour declare them to be true. Our German soldiers have not shot a single Belgian civilian nor burnt a single Belgian house unless by order of their superiors to punish outrages unheard of in the history of modern European warfare although not unknown in the Belgian Kongo.
>
> Belgian men, women and children have murdered German soldiers peacefully sleeping in their houses and coaxed into security the evening before. They have cut out the eyes of the wounded, mutilated them, shot nurses and doctors.
>
> The town and population of Loewen [Louvain] was not touched until the German garrison was fired on by the whole civilian population. Then there was a fight and after the fight the whole population was ordered out of the town and fire put to many houses. Nevertheless when by order of their superiors our soldiers were busy extinguishing the fire to protect the town hall they were again fired on.
>
> Many thousands Dum Dum bullets have been found in the pockets of many French soldiers, they were of French make and obviously manufactured.
>
> It is not true that the Russians are progressing in Germany, we have beaten them in a decisive battle on the 29th of August, and made 90,000 prisoners ; in the last three days we have won another great victory and now there are practically no more Russians on this side of the frontier.

He had been a Captain in the Territorial Force since 1910, and was on the Staff of the 3rd London Hospital ;

he worked hard for its organisation and equipment, so soon as war was declared; but of course he was longing for more active work: he was, as he afterwards said, 'eating his heart out at home in enforced idleness': and he tried all possible means to put his services at the disposal of the sick and wounded. On August 12, he writes to Sir Arthur Sloggett:

> As I am extremely anxious to serve in the present War, is it not possible for me to be *transferred* to the Active Service List, and given an appointment as Surgeon to a Base Hospital either in England or on the Continent? I will wait on you to-morrow at the War Office on the chance of your being able to see me. I may say I have my kit, and could leave at once.

He was advised not to ask for immediate transference. A few days later, he writes again:

> I venture to hope that you may think it well to form a group of supernumerary officers, attached to the Expeditionary Force, and at the disposition of the Principal Medical Officer of that Force, in order that he might supplement the establishment of any base hospital upon which special pressure of work happened to fall. This would not in any way mean the appointment of a special group of 'consultants,' a course which has always seemed to be contrary to Service organisation and discipline. On the other hand, the appointment of supplementary officers would not only augment the general surgical staff when required, but also, if desired, add to the consultant strength.[1]

On August 25, he writes to Dr. Lendon of Adelaide:

> The situation is exactly what you would expect from the aristocrats who rule Europe. Austria trying to smash Servia: Germany coolly smashing Belgium. Burglary and murder arranged in the name of God by rulers and nobles. And all the while the people who are starved, tortured, and killed have not had a single voice in the matter!

[1] *To Dr. Mary Sturge, Aug.* 17.—'Clearly we can push forward now [with the fifth edition of Alcohol and the Human Body], though it is really very difficult to work with any go or purpose when one is quite certain that one could really be of much more service elsewhere, *viz.* in the Belgian base hospitals. However, I am not going out in any of these fashionable and disreputable sideshows, I am glad to say. Moreover, as a T.F. officer, the War Office have the determination of my movements. If they agree to my application to be transferred from the T.F. to the active service list, I would probably be off somewhere about Sept. 1, I suppose, but I am doubtful how far my innumerable haters will succeed in dishing my application altogether.'

> The worst is that the people generally, and especially the Germans, are not civilised, and are so uneducated politically that they are like sheep, and I doubt really whether, when all this mad folly is over, they will claim democratic and parliamentary Government. If they do not, then all the same rotten expenditure on armaments and fleets and 'glory' will go on just as before, and in another fifty years there will be another turn-up of the same kind. Of course we must simply now keep the pot boiling until the Germans have evaporated to dryness, or life will not be worth having for anybody anywhere. Siward and Oswald being in the Territorials and I in the Territorial Medical Service, we chucked our holiday on mobilisation, and came back here to remain. My base hospital having a staff twice too large, and my seniors having started first with the posts, I have volunteered for the Expeditionary Force in France, but doubt whether they will appoint any Supernumerary Officers yet. However, my name is down first to be employed from the Territorial Force, so if I am not appointed it will be the usual official opposition to liberty and anything short of senile humbug. In the Boer War no one of any independence of thought was selected.

In September, to refute the German assertion that our soldiers had been supplied with 'dum-dum bullets,' he was asked by the War Office to report on the rifle and revolver ammunition issued to the forces; and made some experiments, on the lines of his previous work with Dr. Kramer. His two reports bear date September 13 and 15, 1914.[1] There is a letter to him from the War Office, September 15:

> Lord Kitchener has asked me to thank you very much indeed for your memorandum on the service rifle bullet in reference to its effects, and he hopes to make great use of it. He immediately asked me about the revolver bullet, and I told him that you had very kindly arranged to send another memorandum on that.

In October, he accepted an invitation to join the Union of Democratic Control; and at once tried to persuade

[1] For the German assertion, see the Times, September 10. The report of the War Office (Times, November 10) proves that the ammunition issued to our forces was in absolute accord with the requirements of the Hague Convention. It says also that German troops, 'both in Togoland and in France, have been proved to have used bullets with a soft core and hard, thin envelope not entirely covering the core, which type of bullet is expanding, and therefore expressly forbidden by the Hague Convention.' Such bullets, of no less than three types, were found on German soldiers, both in Togoland and in France.

them to include female suffrage in their programme. On October 9, in Liverpool, he gave the Mitchell Banks Memorial Lecture. He spoke of Mitchell Banks's influence on the operative treatment of cancer, and on the radical cure of hernia: and he described his own method for the radical cure, which he had used since 1890. Finally, he spoke of the good social and civic work which Mitchell Banks had done for Liverpool; and quoted one of his sayings:

> We must be something more than mere prescribers of physic and healers of wounds. In my youth I had it strongly recommended to me to stick to my profession and leave everything else severely alone. The life of a doctor was to see patients, do operations, order drugs, and collect fees. I thank God that I entirely repudiated this idea of my profession.

In November, he took part in a controversy over the best method for the immediate treatment of heavily infected gunshot-wounds.

By December, he still had not the work to which his record in science and practice entitled him. To be one of a dozen men on the staff of a Hospital in London was not good enough for him. It is worth guessing, what Germany would have done with him, if it had possessed him, and had not imprisoned him for his politics. Perhaps it would have given him a Hospital of a thousand beds — some K.K. Anstalt for Wounds of the Nervous System—with a host of doctors and nurses working under him. Mr. Bond writes:

> I was in Australia when the War broke out; and saw Horsley soon after my return in October 1914. His two sons had already joined the combatant ranks of the New Army: and when I returned from my first visit to France, in December, Horsley expressed to me in forcible and moving language his own great desire to be of some personal use in the national cause.

Early in 1915, he was appointed in charge of the Surgical Division of the 21st General Hospital, for service in France. Meanwhile, he had promised to be Surgeon to the British Hospital established at Wimereux by Sir Henry and Lady Norman. The 21st General Hospital was not yet organised:

he was therefore allowed to keep to his arrangements for Wimereux.

On February 8, he opened a discussion, at the Medical Society of London, on Gunshot Wounds of the Head. He went over the experiments made by him and Dr. Kramer: and he took point by point the signs and conditions to be observed in these cases. He spoke against what he called the wicked tradition, the fatal and detestable practice, of 'leaving head cases alone'; and upheld the example of a case in which Major Sherran had saved a man's life by trephining within a very few minutes after the infliction of the wound. There is one touch of bitterness; and no wonder: 'I have not been permitted to see any cases in the present War, except a few exceptional cases which happened to be referred to me unofficially.'

On March 8, in Leeds, and on March 15, in Huddersfield, he spoke on the need of more control over the drink-trade. He went to Wimereux on March 28.

The British Hospital was in the Hotel Bellevue; the two first floors as wards, and the top floor for the Staff; their meals at a near little restaurant; 'everything quite good and simple and rough.' His letters to Lady Horsley begin with his first impressions of Wimereux:

> *March* 29. This place would reduce you to tears on coming into it, and twenty-four hours would place you in Bedlam. It consists of half-built French houses and a few hotels planted in a hollow with a little river, muddy because tidal, about 15 yards wide, running down the middle. The country *immediately* round it is a desert. The river runs in front of my bedroom, and the ducks on it demand their breakfast punctually at 6 A.M. with no uncertain voice.

The 'family party' was a happy family: 'The life is of course interesting and very pleasant in its funny way. The Matron and sisters are all excellent and know their work well.' The wards, at first, were half empty: 'The morning's work has taken about 1½ hours, but the experts have called on me, *mirabile dictu*, and so that takes up the morning as well.' There was time for some sight-seeing: he writes of the churches at Audinghen and Marquise, the 'wonderful stateliness in a small church — all Early English I

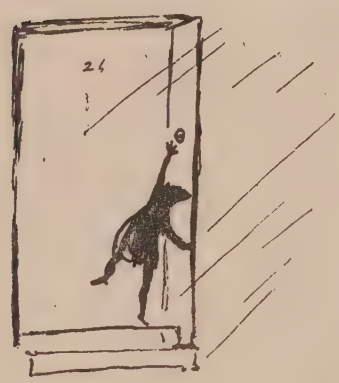
think of course can be stately' — and of white violets by the roadside, and of the Convalescent Camp: 'From having been a mud misery of wet tents it is now a hutted establishment very thoroughly installed and admirably administered, thoroughly and economically: the paths all stone causeways, and, between the huts, flower-beds, with national symbols.' On Saturday, dinner with the mess of the 14th General Hospital, 'of which we are really an annexe'; on Sunday—

> Sunday was rather amusing. Lady Norman had insisted on our having a P.S.A. as soon as she found that I knew all about it: and we found at the Convalescent Camp a capital young Canadian lieut. who was a host in himself and brought down a congregation for us, who possessed six experts in mouth-organs and a piper of the 2nd Gordons, Tennent by name, who was in Oswald's company. We began the show with the Cock of the North on the pipes, and then Tipperary by the mouth-organ band. Then a hymn, then Norman, who I insisted on being in the Chair, read at my request the 55 Ps., which he did with splendid verve. It seems he is a great reader. Then I gave my usual war address, which was much appreciated: then another hymn: then Won't you give me your answer, Maggie Mackenzie? on the mouth-organs: and another obligato. Really excellently done and enormously appreciated. Closed of course with God Save the King. Altogether a vast success. The Good Templars in the Army here want me to hold forth. I will write to Miss Coomber and get her, as you will be away, to send me out my slides. It seems they have a lodge here, and one at Boulogne. (By the way, I think almost all the mess drank wine in spite of the King. I quite agree as to the Temperance party keeping low awhile. The King's example is I can see crushing, but taking time to work.) In the evening I went over to the Australian Hospital, where they have every three weeks a most interesting gathering of all the surgeons, or two from each hospital. They all have to select representatives, and consequently all the experience is well collected. Then a beautiful walk home over the cliff, as it was a clear cold evening.
>
> *Monday.* Robinson and I have had a fine time in pelting rain. We went in the tram to Boulogne: settled about a poor chap I have, and want to get to England: hopeless spinal-cord paralysis: a fine young fellow but doomed: and I am anxious to get him home to see his people before it is too late. The harbour is a mass of orderlies, mud,

and good-natured hard-worked officials. Then a grand tour to the old town, where I am thankful to say I found Henry VIII's cannon-ball stuck in the wall. These beggars here would not believe in its existence. The children of



course were running about in their capes in all sizes and proportions. In consequence of the said rain, I found two harrowing sights at front doors. The agony of the fingers trying to reach the bell-push was only equalled by the convulsions of the legs. Tragedy No. 2 I put an end to by ringing the bell and walking away. Long before we got





out of sight we saw the door opened, and of course the unfortunate one went in like a streak.

Through the first half of April, the work was slack: 'it is the unsatisfactory business of amateurism. These private hospitals are not wanted, though the beds are': and his letters to his wife are concerned both with his work and with hers—with the affairs of the British Women's Temperance Association and the Women's Liberal Association. And one letter is to say that he wants twenty cakes of verbena soap from Atkinson's in Bond Street: 'I mislaid

mine here while going round, and two sisters thought they were being distributed, so naturally impounded them! Now I must furnish all the rest! and have one for myself!' The Hospital, like private hospitals elsewhere, had to ask for patients: then came a rush of work:

April 17. We have had such a day and night business of it that I have not had time to write. Also, there was a block on the line, and consequently the septic cases arrived in bad state, and that means many more dressings per day. Now we have got things straight, and I am thankful to say an amputation at the shoulder I had to do for spreading gangrene is going to recover. He is such a splendid chap: a Manchester cotton-weaver. . . . Now as regards your biz. Of course —— is an arrant old incapable humbug. She always has been a pro-alcoholist: and of course got into very serious relations with the American quack praying woman who called herself a doctor. I would quietly go for her at the meeting bald-headed. . . . The steady determination in the newspapers of the alcoholists to disregard the King and Lord Kitchener is very striking. What have —— and ——, etc. etc., done? It would be worth while making a census of one's friends. Here the Normans are the only ones who have deliberately followed the King. —— did for a few days, and then relapsed: he is extraordinary in his reactionary ideas: but 90 per cent. good-hearted. Of course he is a rabid anti-suffragist. Fortunately I find all the sisters here are first-rate people and all progressive: so when we are thoroughly sick of his and ——'s 'arguments,' we can concoct plans for the future.

April 21. We have had a doing of it, chiefly owing to the number of cases not of wounds but all sorts of ailments, trivial and otherwise, arriving at all hours of day and night, especially midnight. That part is very badly arranged, as the train leaves the railhead at 8 or 9, and takes twelve hours to go about fifty miles. Every case has to be looked at, and always some to be attended to at once. On the whole the wounds come down well dressed and comfortable. . . . —— made me very angry yesterday by coolly saying that we (the English) were on the whole carrying on this war very cheaply! He meant in the loss of life! I told him that if he were in the firing line he might have some justification for saying such a thing. *April* 25, 6 A.M. As I had to dress a case at 4, and a fresh convoy of wounded arrived at same time, I am up and writing while the unfortunate victims of men's government are being washed and got to bed. *May* 8. We are having a steady stream of bad cases admitted now at all hours, and I hear that this

> is likely to be the case now. As a matter of fact all this country should be organised as Base-hospitals, it seems to me, at least as far as Calais. Etaples in my opinion is unnecessarily far off. Unfortunately we are beginning to get rather more sepsis with the warmer weather; and the men's chances vary directly, as I maintained last August, with the promptitude they are treated with after the moment of wounding. We have some gassed people, but on the whole not bad ones. Four head cases severe all doing well. One is a regular Northumbrian from Alnwick, who works in the Park, and was frightfully bucked because the Duke had heard he was gravely wounded and wired to know how he was getting on. He was shot through one frontal lobe and partly the other, so he is a 'good case.'

There was a plan for his wife and his daughter to come over. Le Touquet would not please them—'a vile hole as you may suppose of the worst artificial French seaside place. The pine-trees which are all about 20 ft. high are interspersed with rustic seats; and the plage a hideous collection of houses.' But Etaples promised well:

> I believe it would be quite a good move for you and P. to take up quarters in a nice old house there, or board with some decent people. I saw some quite good houses, one with a beautiful garden, cherry-trees full blossom, etc. etc., and Henri IV walls.

But these plans came to nothing: for in May the 21st General Hospital was ordered to Egypt. He had a few days in London, to get his tropical outfit: he was gazetted Major, R.A.M.C.(T.): and on May 20, 1915, he left England. The six weeks at Wimereux had been a pleasant time: but the work was not enough for him. The private hospitals, even the best of them, were imperfect instruments: he envied the discipline of the Australian Hospital: 'They are very good up there, and have got their place on strict military footing.' But his Wimereux letters are delightful: for they recall his gaiety, his kindness, and his enjoyment of the world's kindness—its fine architecture, and its white violets, and those twenty cakes of verbena soap from Bond Street—and his last sight of a country as beautiful, and almost as dear to us now, as our own.

II

Egypt

The Staff and Nursing Staff of the 21st General Hospital left Southampton, on H.M.S. Delta, on May 20, and reached Alexandria on May 29. He began well, with 'a powerful Atlantic swell which cut off half the population of our tables and established for me a great reputation, because I went round and dosed the sufferers with anti-nausique and effected great and marvellous cures. . . . I am glad to say the 21st Hospital is shaping very well. The O.C., Col. Robinson, knows his job and does it. The second in command, Major McDowall, is I should fancy a very good officer, and one who not only knows his business but can see that we do ours: so that is a good start. I come next, and therefore all the bullying must start from my level. Our quarters are very comfortable: a few have cabins to ourselves, but the majority are in ward cots. Unfortunately, as the ship has been gutted to make the Hospital, we have to feed in two lots, which is not nice for those who must dine at 6. The Captain is a *very* nice little chap, Le Mare by name, and most successful. Altogether it is a very "happy" ship.'

May 22. At night the afterglow was magnificent. Of course you won't believe I saw them, but the colours were *Sky*, deep blue, green, pale yellow, deep red; *Sea*, dark indigo: shading into each other 'as per diagram.' At 5 I woke and looked out just in time to see a very fine predawn effect behind a really large hill cape with a dark wreath of cloud round it, and the suspicion of dawn as a light background.

May 24. We passed Gibraltar like many ships do 'in the night,' and are now going diagonally through the Strait some 120 m. E. of Gib. The Spanish coast is most effective in a limited way. The tops of the mountains

were quite 'floating,' as people say, on the mists. The sea is calm and as tedious as usual with nothing to be seen.

May 26. The Northern shore of Algeria developed as a wonderfully forbidding wall rather like the Lynton coast in general design, but in detail simply atrocious. Blue sandstone and limestone cliffs with dry watercourses grooving them and curious scrubby woods spread over the ridge. Later, the coast settled down into the conventional sandy wastes which we suppose to be the regular thing for N. Africa. We have now turned the Tunis corner and are running past a volcanic island called Pantellaria covered with the usual scrub on the top, and most of the rest of the surface cultivated in little fields, and each small holding has a little house. I suppose that as it is an Italian convict station, it is a kind of Botany Bay.

May 27. We are grinding away through a pure ultramarine sea almost calm, and nothing to see or do. Satan therefore suggested to the Colonel that he and the two Majors had better be inoculated against typhoid; so we were duly done and my arm is proportionately disagreeable. However, it appears that the regulations say, no alcohol of any kind is to be taken during the inoculation period. On enquiry I find that the War Office worthies learnt by experience that when the injection-area began to hurt owing to the local congestion, a small quantity of alcohol (one go of whisky for example) caused not only much more pain and throbbing from vascular dilatation but also produced more headache and general disturbance, owing to the fact that sundry toxins being also present in the blood, the alcohol increased the constitutional discomfort they caused. It is really a lovely demonstration that small doses of alcohol produce very definite ill-effects on the body. I pointed this out to the drinkers at our table who had not considered the point.

May 28. Still oozing through the liquid ultramarine: and nothing else. The cats here on board are amusing and numerous. The progenitor of the race used to be a great ratter, and was an animal of great discrimination, because whenever she caught a rat she brought it to the Captain's cabin to present it to him: and if he was not in, she took it to the 1st officer, who of course was pretty sure to be in his bunk if the Captain was out and about. Nobody else was ever noticed. There are two terra-cottas, one black (a half-bred Siamese), one iron-grey, and an inexhaustible kitten who spends most of his time on his hind legs and makes us all the 200 rank and file play with him. . . . The climate is just beginning to stoke up and feel rather like New York did. I can't think of any more, you will be glad to hear. Farewell. Talking at Beaulieu of water-wagtails, I find

that the Arabic for him is Abu faraikh, which means 'Father of Promenaders.' Quite agreeable, is it not?

He was in Egypt from June 1915 to March 1916. In August, Lady Horsley joined him. In October, he visited Mudros and Gallipoli. In October, also, their daughter joined them In November, she had very severe dysentery, and nearly died of it. At the end of the year, he visited Mersa Matruh In February 1916, he got a few days with his wife and his daughter at Helwan and Luxor. In February, also, he received the honour of the Order of the Bath.[1] In March he went to India, and from India to Mesopotamia.

Alike in Egypt and in Mesopotamia, he had grave reason to find fault with the administration of the medical services. Nobody doubts that they were ill-prepared for the War: nobody doubts that he had much to do with their improvement. But his hatred of alcohol tends to make him embitter the case: he writes now and again as if he were fighting for dear lives against men so dulled by whisky that they hardly cared to do the right thing.

The building assigned to the 21st General Hospital was the Outer Barracks, close to the Khedival Palace, Ras-el-Tin, Alexandria.

His letters to his wife, at first, are in great part concerned with advice to her not to come out till the hot season is over:

> *May* 30. . . . No real preparations made for us at all, so we shall be frantically busy licking into shape the rotten old barracks which have been handed over to us to convert into a hospital. The Israelites in Egypt were not in it *re* making bricks. We are temporarily billeted in a frowsy Greek hotel until we have made comparatively clean the floors and walls of our new quarters. Of course the colours, sunset, etc. etc., are lovely, but the smells and flies are somewhat turgid. *June* 1. . . . So much for climate. Now

[1] This was the last of his many honours: but it is worth noting that Professor Petren, of Stockholm, had more than once proposed him for one of the Nobel Prizes: and that he had accepted an invitation from Vienna, a few months before the War, to give the Nothnagel Lecture. No man in his profession had more friends and admirers, up to the time of the War, in Germany and Austria. He was the man to watch operating, to be proud of knowing, to ask after—'You are an English doctor; do you know Sir Victor Horsley?'

for Alexandria. Really not worth visiting artistically. As an introduction to the East, and a halfway house, it will pass: but I foresee many days in which more work will be a relief. For you and P., life would be very slow and not pleasant, unless the weather was tolerable, which of course at present frankly it is not. Mind you, I like the heat and feel extremely well with it, but I think without occupation it would be unspeakable. We have cockroaches here as big as mice: one has just descended my chest of drawers. I fear this little invasion would not please you. Mosquitoes are just getting to work. (*Note.*—The said cockroach has just gone to ground, having perceived me uneasily from an eyrie on one of the brass handles, which I suppose he absurdly thought suited his complexion mimetically.) So much for insects. Now for history. I cannot now explain fully the position of the wounded British Soldier out here. Thank goodness the boys are in France. . . . You cannot in administration get people of one age. Naturally, the man at the top is a good deal older, and 'What was good enough when he was a young man,' etc. etc. That is the only way I can account for this never-ending repetition of conditions which have been pilloried from the time of Florence Nightingale onwards. *June* 2. I went this morning to the Indian Hospital (San Stefano) and found them in great feather, as they had taken my advice and operated on a head case and got out the bone and pus I suggested was in his head. I operated for them on a like case, and then hurried back to our shop where we spent a busy morning setting up the theatre and *x*-ray departments. . . . The poor old Delta is still in harbour taking off wounded in an outrageously slow and heartbreaking way. Among them to-day was a small bugler about 14 wounded in the arm, with apparently a *tumour* on his shoulder. This on examination proved to be a pet monkey concealed under his coat over his dressings! I am glad to say the Maj. R.A.M.C. in charge allowed him to keep his monkey on the ship; so they will have a time of it, I expect, going home.

June 7. We have had a strenuous three days bug destroying, masonry ditto, firing with paraffin blowers and finally spraying with formalin and washing with cresol these large barrack rooms. The bug section I led with three most excellent subs, and so I photographed them which pleased them. Then we had to clean the windows and doors, so now we really are aseptic at the present moment.[1] I am

[1] Pte. J. R. Matthews writes, May, 1917: 'I was in Mesopotamia, and just at the time he arrived there, the fellows who were in Hospital, at any rate the particular one in which I was, were very much bucked up, and talk generally was, things will be much better after Horsley has paid

sitting in the verandah, which is a dusty but cool brick loggia. *This* is what is in front. The broken line is a reef of rocks with surf, and a boat is making for a gap. The object on the right horizon is a fort we busted in 1882: and the objects on the sea-wall are two normal Egyptians in their niteys conversing affably. The surf bar with the flat shallow bay is of all imaginable colours from ultramarine in the far distance to light transparent green in the foreground. . . . The native children play here at football in the broiling sun: also knucklebones like the Pompeians: also the game of horses, as played with the shirt (only) as reins. Now to work again. *June* 12. I had my second inoculation on Sunday. Owing to there being no preparations whatever for our coming, and the needs for the wounded being something not yet to be described and therefore requiring every one to buck up, we had a hot time, and on Wednesday I wrenched my bad arm, so it paid me out with a feverish attack from which I am already recovered. It was nothing in my opinion but a dose of toxins, and sure enough has disappeared. . . . Small jokes have enlivened our work. We were hunting for operating overalls and aprons: and while I was laid up, one of my subs, a very good man, said he had found them and was sterilising the lot. In the evening, came a note from the Quarter Master's Office, 'Would he very kindly return the Cook's aprons, which they heard were being sterilised'!

June 14. The work grows exceedingly, and unfortunately the difficulty of enthusing our own people to do the best for the wounded and not put them off with a makeshift is terrible. Any one would suppose they thought it the wounded's own fault they got injured and must put up with a few wholly avoidable inconveniences, many of which can cause death itself. I really could not have imagined such wooden cerebration. The equipment of this hospital, supposed to be most modern, falls short of absolutely essential things in some cases, and I am trying to get them locally, but it requires incessant application to the powers, who not being conversant with modern surgery cannot of course recognise the terribly urgent need of various essentials. The usual formula is, Can't you ask Sister to do it? Sister being already done to death. Meantime

---

us a visit: and such a bright picture was painted that, when his death was announced—well, to say the least, it was a terrible shock. Eventually, I arrived at a Hospital in Alexandria: and it happened to be one which, when it was taken over, needed a lot of cleaning out: and I met there a man who told me Sir Victor was with their detachment when they took over this place, and spoke in glowing terms of him taking his share with the men in all kinds of dirty work which was needed to make things suitable for Hospital work.'

liberal expenditure on the drink trade, and the Sister's salary cut down.

June 17. The chaos here continues in full swing, out of which we are slowly evolving a hospital. We are told we are to receive 400 sick and wounded to-day. We have nurses for 150! To supplement, I understand other places which are understaffed and overworked are to be still further denuded to supply our wants. . . . I see they have actually run a Derby in England. Certainly the hold drink and gambling has on our people to the exclusion of everything else is inconceivable except to those who have realised it before. The mess still goes on in its stupid and disloyal alcoholic way.

June 20. I had to come into Alexandria to hunt up some *x*-ray help, since the creators of chaos have poured 160 wounded upon us while we are getting in, and while our *x*-ray apparatus cannot be fixed up, as they know, till Thursday. This is the history of all the hospitals here: and some have none at all. The public-house loafer at home is far better treated by the nation medically than the soldier who is sacrificing his life. Of course the usual lie will be uttered, 'Oh, but this is War.' The net result is that the shirker and drinker benefit enormously and the unfortunate wounded are practically told to shut up. The work as you can understand is depressing beyond words, and the more so as every effort to get better drugs and conditions is criticised and thwarted as if something unreasonable was being asked, instead of the bare essentials of medical treatment. Egypt produces nothing but raw cotton and food. Consequently when the home authorities refuse to send out *x*-ray plates ordered as long ago as last April, it is obvious that the drink trade has got well hold of our nation, for they know that we cannot by any manner of means get hold of these prime necessities of military surgery. One authority I heard of dared to say of *x*-rays that they were 'so misleading.' Of course such an infernality he would not venture to say in a meeting at home. I am not, therefore, in any condition to write you amusing or interesting letters: all my energies are devoted to trying to get for our unfortunate men the merest elements of medical care.

On June 24, he writes to a friend in England, 'In a few days I shall be appointed Consultant (I am practically acting as such now) to the hospitals: so my sphere of work will be altered, and I shall be rushing about all over Alexandria and its suburbs instead of superintending the one department in this hospital.' On July 14, he was appointed

Consultant to the Mediterranean Expeditionary Force, with the rank of full Colonel, A.M.S., with the duty of visiting hospitals, hospital ships, and officers, in the interests of the sick and wounded. He is outspoken: he writes, for example, in one of his reports, 'I have just been on board the ——, a so-called hospital ship (though her latrines are defective, her operating theatre wretched, and she has no *x*-ray apparatus at all) because a case of gunshot wound of the brain was admitted from her in a hopeless state into the 21st General Hospital.'

He and Lady Horsley and their daughter had rooms in Mme. Caillard's house, Villa Yasmin, Glymenopoulo, near Ramleh. Colonel Tubby, Consultant M.E.F., who also was at Villa Yasmin, remembers that Horsley, even in the heat of the summer and autumn, used to work through the hot evenings, writing letters and notes of his cases. A car, after some delay, was allotted to him: it was a 4-cylindered Bayard, eleven years old and worn, but it behaved far beyond expectations: it was named The Emden. Mr. Edward May, his chauffeur during the last two months in Egypt, remembers of him that 'When driving along at any time of the day, should a nurse, soldier, or one of my own friends be going our way, he would always stop the car and give them a lift. At times he would go out to Aboukir in the desert, by some old ruins—fossil-hunting as I used to term it.[1] There were always three or four friends with him on these trips, so we used to have tea in the desert before we returned home: my duty was to get the billy boiling whilst he prepared the tea: on no account would he let me sit away from the party: and on one or two occasions we had our photos taken . . . Upon returning from the hospitals one day, he presented me with a book of which he was part author, "Alcohol and the Human Body." He put inside, To Edward May, with one of the authors' best wishes for a speedy return to civilisation and commonsense.'

[1] Horsley never took out the car except when it had to go on Hospital work; he was very careful to keep to this rule. The halt at Aboukir would be on the way to or from a Hospital.

Of Horsley at Gallipoli, Major Aspinall, 1st Field Ambulance, 1st Division Australian Army, writes :

> I met Sir Victor Horsley at Anzac on 14th October 1915. He had been visiting the medical units at Suvla Bay, and came across to Anzac. Colonel (now Sir Neville) Howse, V.C., deputed me to take him round to see the conditions under which Field Ambulances were working in 'dug-outs.' On walking round I was much struck by the ease with which he walked up steep paths without showing the least sign of exhaustion : he told me that he was in very good condition. At that time, in response to our appeal for more medical men from the base, some fairly old men had volunteered and been sent up. Speaking to Sir Victor about the depletion of our medical officers from sickness and wounds, I made the remark that in my opinion it was wrong for men of some fifty years or thereabouts to be exposed to the danger and discomfort of work at the front under the trying conditions we were experiencing at Gallipoli just then, and said that it was a young man's job. To my surprise he said, 'I do not agree with you : the loss of a young life is of much more consequence. For example, what does it matter if I am killed ? I have had my day.'
>
> Talking to him as we were walking along, I was much impressed with his courtesy, and the kind way in which he listened to my account of head-wounds I had seen, and the trouble he took to answer my questions. One of our officers, Major Dunlop, a young man like myself, had been seen by him : almost every one who met him at Anzac asked him if he had seen Dunlop, and to each he replied so kindly and thoroughly. On October 15 he addressed a gathering of all the medical men who could be present, at the Stationary Hospital recently erected in tents near the beach, and gave a most interesting address on the best methods of dealing with wounds under the unusual conditions met with at Anzac, where there was no place free from the risk of shell fire. This gathering really suggested the formation of the Anzac Medical Society.

He was away on this visit from October 1 to October 23. He reports of it :

> I walked over the ground at Suvla Bay, Anzac, and Cape Helles, and visited almost all the Field Ambulances and Casualty Clearing Stations, as well as many of the regimental dressing stations and advanced dressing stations in the supporting trenches and in the firing line. At each of the clearing stations and ambulances, the officers commanding kindly collected their officers as far as possible, when I

had the opportunity of addressing them and consulting with them on their experiences and difficulties. In this way much time was economised, *e.g.* at Anzac some sixty officers attended.

He recommends that a short pamphlet should be printed and circulated, with notes on the use of the Hey Groves splint, and on other details of treatment. And he calls attention to (1) the absence of roofing materials for the dug-outs, (2) the shortage of warm clothing and covering, (3) the absence of digestible fatty food. 'On all these points, special action should be taken at once, not only on behalf of the troops on the Peninsula, but also those who are under canvas at Mudros.'

On November 30, he writes to Dr. Mary Sturge :

A hurried line to say that we are passing through a terrible time here, as Pamela has a very severe attack of dysentery. . . . To-day she is much better thank goodness and I am assured that she has good prospects. Fortunately we got her into the 5th Indian Hospital here, where McCarrison has simply devotedly waited on her actually hourly. Every one is *very* kind, and the Matron of 17th Gen. Hospital has sent me splendid sisters to nurse her. Eldred has stood the strain splendidly : but really what she has had to go through, the last 18 months, is intolerable to think of. Looking back over these 8 days, one can see that Pamela has made a fine fight of it, and as symptoms are bettering and not worsening I suppose we are entitled to optimism. I am sorry to give you such a sketchy account. I know you must want to ask a hundred questions, but it cannot be. I must write when the anxiety is less heavily on me than it is now : and I have an article for Pitman's on Parenthood and Alcohol I must turn to. By the way, I was scandalised, on opening our book, to find a vulgar design by Walter Crane of a young man and woman drinking wine and Cupid underneath. This on a bookmarker by the Scottish Widows Co. I wrote to them and to Macmillan. The former have answered as enclosed. Of course to Macmillans I protested against such a thing being stuck in our book, and to both I protested against its issue just now when the country was staggering with drink when it ought to be marching against the enemy.

In December, he went to Mersa Matruh, to inspect and help to organise the medical arrangements on the Western

front of our forces in Egypt. He writes in 1916, from Alexandria, to Miss Alys Clarke, one of his patients in England; a long illustrated letter, to amuse a young Irish girl:

> I was ordered here from France last May, and may get pushed on somewhere else. In September, I went up to the Front on the Gallipoli peninsula and to Lemnos, *i.e.* Mudros. When I got back from there, they sent me just after Xmas to the western front, about 170 miles from here, where we are fighting the Turks and Arabs who have been paid by the Germans to make a dust in Egypt on the side opposite to the Canal. But they are wondrously stupid, because their notion of attacking is so spasmodic, it is quite obviously nothing but a draw-off. The place I went to, I dare say, you won't find in a map, but it must have been 'some place,' as the Americans say, in the time of the Romans. It is called Mersa Matruh: Mersa is Arab for harbour. The harbour is a landlocked bay of deep blue water and exquisite white sand on a rocky base, so that steamers can lie up against the sand as it were. There are three such lagoons; one is now cut off completely, and called the Salt Lake. The third on the W. side was the chief Roman harbour, and still has Roman quays, etc., which of course Antony and Cleopatra are said to have used when he had to make tracks after the battle of Actium. By the way, Cleopatra's portraits on her coins here make her as you might imagine a very unpleasant party. Of course as a matter of fact all the Egyptian queens of that period were not the sort of people *you* would have called on or asked in to tea. Just below the hills on which our pickets were set there were very interesting remains: one, a Roman villa, with a great deal standing. . . . I am so glad you are well, and the scar improving. When the war is over we must meet again. I hope they give you plenty to eat and plenty of time to play at the College! When we meet again I am sure you will agree that Carson is no good!

Another letter, February 2, 1916, is to an English friend in America. It was written in one of his moods of extravagant thought:

> . . . If the English people choose to go on without universal suffrage for men and women, then, as Lecky points out, they will have to have wars, and as they get killed and the kings and emperors don't, it does seem rather stupid of them.
>
> My eldest son Siward, who was wounded at Neuve Chapelle, has been invalided and is at present testing steels in Arm-

strong's gun works. The second, Oswald, who was shot in the left shoulder in 1914, was hit in the right shoulder last August, but luckily without involving the joint. He was in charge of the bombers, and rather distinguished himself, so has been mentioned in despatches ; and is now back at Aberdeen getting a new draft to go out again. My wife joined me out here in August : and Pamela in October while I was up at the front in Gallipoli. They worked in the stores of a neighbouring hospital : and Pamela was struck down with malignant dysentery. Fortunately she had the devoted care of an I.M.S. colleague of mine, Major McCarrison, who pulled her through splendidly : and after six weeks I got her and her mother off to Helwan near Cairo where they are rusticating and recuperating on the desert edge. Now you know all about us.

As to what we are doing, I can only say that my whole life is spent trying to get order out of chaos, trying to make the aged and incompetent realise that the British Soldier *is* a human being. . . . It is very difficult to explain the sense of weariness produced by the dull apathetic indifference of the person above you in command. And what is also fatiguing is the realisation that owing to the censorship and oligarchical government the people at home are kept in a fool's paradise. I daresay it 's not a fool's paradise, but they have no real conception of what is going on. What too is irritating is that, as of course we shall win ultimately, it is certain that the lives sacrificed will be wholly forgotten in a year or two, except by the poor relatives of those thousands who have died for absolutely nothing, and the hundred and fifty thousand who have been crippled.

He writes on another subject to a friend in England, January 14, 1916 :

I quite agree with you as to our future bearing towards our German friends. It is impossible for our or the next generation to trust them again ; but I do not see that any action could be taken on such distrust, apart from non-employment and non-assistance on any but humanitarian problems. These they are not likely to trouble us with : but to take a case in point, any medical question we ought to help them to solve just as our own people. Personally I shall never invite any of my former German friends to my house, etc. It is not a question of thereby depressing the activities of the decent people. That would have some force with me as an argument, if it were shown that the decent minority are not completely Hohenzollerned. As a matter of fact it is clear that they are. . . . The naturally servile brain of the German is completely cowed. Unfortunately

> our stupidity and drunken misdirection of our militant efforts simply encourages the German slave in his belief that his slavery is something miles better than our freedom.

During January–March, 1916, Lady Horsley and Miss Horsley were first at Helwan, then at Luxor. His letters give them not only health-advice, but the news of each day's doings, his movements, the comedy and gossip of Alexandria, and what he thinks of So-and-so, and little fugitive jests and scores; anything to lighten the depression of convalescence in exile. He has £140 left of a gift from Mr. Cadbury to buy comforts for soldiers; and he makes a fine list of quantities and prices of them. He writes also of politics in England; of the evasiveness of a well-known member of the Union of Democratic Control; of a visit with Signor Breccia to some excavations at Aboukir; of a surgical discussion (March 2, 1916), at the 17th Hospital, on head-injuries:[1] and of some of his patients —they ranged from a Pasha's daughter at Cairo to Mme. Caillard's Persian cat. His longing for the happiness of his wife and daughter is incessant: 'I try to stir up every nice person, *e.g.* Col. Grey, to go to Luxor if possible at once. They ought some of them to roll up and make things pleasant for you both.' For himself, the trouble is that his work is falling off:

> *February* 1, 1916. I hope the Museum business is proving as pleasant as your letter sounded; also that stray guests and friends continue to crop up and amuse P. Here things are in a very funny state. No one seems to have anything to do, and yet they drift along contentedly just like Mayflies on a stream. *February* 5. It is a godsend, these people turning up to keep the ball rolling: long may they flourish. I am struggling hard to clear off the things to be written, but somehow cannot get anything done, though the work in the hospitals has sunk to absolute zero. All sorts of

---

[1] 'We had a very successful meeting yesterday at No. 17 on the Head-injuries. Quite 130 turned up. I introduced the subject, and Boyd and Whitaker read excellent papers. Net result of discussion, warm approval of my method. But, such is life, I went to 19 this evening and found a really serious case whose external wounds had scabbed, with no dressings on his head! It really is enough to make one physically cry. I don't know what can be done to alarm our people. They seem to have no fear of microbes.'

changes are developing rapidly. *February* 6. Obviously in another fortnight, unless the Mersa Matruh people buck up, there will be nothing doing at all. Fortunately Sandwith is here, and responsible for all the medical work. No fighting, no surgical work: so there you are.

The week or ten days of holiday with his wife and his daughter, at Luxor, were a golden time, every hour of them. He had borne the fearful strain of his daughter's illness: he had done enduring work in Egypt: he was beginning to feel, with all sorts of changes developing rapidly, that even greater work was coming to him. He had got away, at last, from all that he disliked in Alexandria; he gave himself joyfully to sight-seeing, admiring, photographing—one or more photographs were obtained by swarming up a telegraph-pole—never was he happier than in these few days.

Back in Alexandria, he writes to Lady Horsley at Luxor:

February 28. I hope you people are using your mosquito-net curtains. I find the sand-fly occurs at Luxor, as well as mosquitoes: and its fever, which is, I take it, the same thing as dengue, is very annoying though not dangerous. Also I hope Walshe is really better. Tell him that the spine man at 17th Gen. Hosp. does not require operation: he is enormously better. Whitaker is going home. It is said that nothing is in the air here or likely to be: but of course every one is as ignorant as his neighbour.

On March 5, he writes of a picnic at Aboukir—'The desert flowers are wonderful: sheets of blue, etc., all small but extraordinarily spread'—and of his work: 'To-day I have had to operate at the Indian, and Ras el Tin; and got through the mail: but get a moment to write up what we have done, I cannot.' Then he says, 'Finding there was much work at Bombay, I raised the point of my going there to Babtie. He wrote saying it was not his area (really Indian Govt.) and wanted to know whether I wished to go home. It is a rotten position, asking people what they want when you don't tell them a word as to what is likely to happen. I am answering him that I am in their hands, all I want is work. . . . I know all the ropes here: it

would be stupid of them to throw that away. However, we shall see.'

On March 9, he writes to one of his patients in England :

> Poisonous though this country is in microbic maladies and all the vices that man is possibly capable of, it possesses a charming climate, and the antiquities are worth all they say about them. Moreover the Gippy himself has his points, and considering the outrageously parasitic manner in which all the High Contracting Xtian Powers sit and feed on him and profit by his extraordinary industry (when supervised !) he is to be respected as well as pitied. Not having much of a kick in him, he naturally lies down and leaves all the fighting to his Bedawi friends who rattle about the desert on the fringe of the cultivated areas. . . . I don't know what is going to be done with us, of course. This force is being scattered, I expect to France in the main, but I may be sent to Bombay or possibly Basrah. The only wounded practically are in that area now.

He writes, the same day, to a friend in England :

> In this unfortunate country, since all business is in the hands of parasitic foreigners, no one cares about social questions really ; and though the editor of the chief newspaper here is very bright, he cannot create an atmosphere which does not exist. It is very serious, because it blocks sanitary progress as well as other branches of intellectual work. . . . Eldred and Pamela come back to-night, and will return to England in April. I have to wait for orders from the W.O. before moving, as they may want one for the Mesopotamia wounded. If not, one would hope for the clearing up in France to be the last stage, and get over there from here.

On March 15, he left Port Said for India. He writes, on his way out, to one of his sons :

> I heard there were some considerable difficulties in the Persian Campaign, so volunteered : and after a few days' work in Bombay expect to sail for the Tigris, so as to get as near as I can to the front. There is no doubt that one can be of most use the nearer to the firing line, as the worst cases are the most difficult. Of course the poor old Turks may shake off the German yoke, but I doubt it.

On the whole, he had enjoyed his time in Egypt : he had

seen something of its wonders and its antiquities,[1] had gained many friends, had made his work tell: and he now was looking forward to the 'one fight more, the best and the last.' Sir Henry Maudsley, Professor of Medicine in the University of Melbourne, and on active medical service in the Australian Army—he and Horsley had been together at University College Hospital in 1881—remembers Horsley's delight, the evening before he left Alexandria, at the thought of going where he would 'have a free hand.'

Four letters, from other men who knew him, must have a place here.

From Capt. Arderne-Wilson

I often had the pleasure of meeting him at the Bombay Presidency General Hospital, San Stefano, where he frequently came as consulting surgeon in the cases of injuries involving the nervous system. One morning he was to remove a bullet from the neural canal in the lower dorsal region. He directed that the operation would be performed at 9 A.M. He arrived at 8.55, prepared himself in the ante-room, and walked into the operating-room; the patient was only just then being brought in; he expressed surprise at this. He was told that the patient was brought up immediately he arrived. With a smile he kindly and gently but firmly said, 'Please understand for the future that when I say the operation is to be at 9 A.M., I make my incision at that time.'

From Lt.-Col. Luxford, C.M.G., chaplain N.Z.E.F.

Perhaps I am the only New Zealander who was privileged to receive his services. I had been brought to No. 17 General Hospital, Alexandria, from Gallipoli, with a bad wound in the right leg. Before amputation was decided on, the N.Z.

[1] On June 2, 1915, four days after getting to Alexandria, he writes of the Græco-Roman museum, that it has enabled him to convert two of his colleagues from indifference to keenness over archæology: 'There is really not so much of first-class stuff as a *lot* of interesting things, and some wonderful Greek sculptures small scale, and *large* Tanagras.' On June 30: 'Alexandria is of course extremely interesting as the place where the Ptolemies and the Romans kept the old Egyptian cult going without really understanding it, and there are tombs and catacombs here in which one has the most wonderful transitional work. Then on the top of that we have the early Xtians, whose development is certainly more interesting. The trouble is that there have been so many wars, outbreaks, etc., that practically all Alexandria dates from about 1750. All the work is underground.'

authorities asked for a consultation with Sir Victor Horsley. It was in August 1915. I shall never forget how cheerfully and sympathetically he spoke to me. His presence was like the sunlight. After he had examined the wound, he smiled and said, 'Now for the consultation, and I promise you one thing—we won't take away your character.' I knew what he meant, and think it was a charming way of conveying bad news. His presence and words, in a trying and anxious time to me, are a happy memory.

From Col. Manifold, I.M.S.

Headquarters, I.A.N.Z.A.C. May 27, 1917. . . . Sir Victor was one to whom the Indian Medical Service must always remain grateful. He was by no means carried away by the wave of somewhat indiscriminate enthusiasm which in the early days of the war was exhibited over the work of the R.A.M.C., and which by somewhat ungenerous and small-minded natures had been exploited to the detriment of the I.M.S. when the two services, both in Egypt and on the Continent, came together. The same I heard in Mesopotamia, where the I.M.S. found him their best friend. In Egypt, he had made enemies by expressing, with all that contempt for anything that was not thorough, his views of much that was faulty in the arrangements for the first rush of wounded from Gallipoli, and the administration in Cairo. A somewhat amusing experience occurred when he was there in his rank of Major, before being appointed Consulting Surgeon with the rank of full Colonel. In one of the Egyptian Hospitals to which wounded in the early rush from Gallipoli were sent, and which hospitals were entirely under the charge of surgeons of Egyptian nationality, one of these latter had several cases of severe head-injuries under his care; and he telegraphed that a specialist on brain-surgery might be sent from Alexandria. Sir Victor at once started off, saw the cases, and gave his advice as to what was to be done in each case. The Egyptian surgeon did not know the name and fame of his visitor, but was not at all satisfied that the best had been done for his patients when he saw only a Major in the R.A.M.C. had come, and one who from his age, he felt, could not be a distinguished member of the service, or he would certainly have attained a higher rank by that age: he accordingly wrote in to the authorities of his own service, stating that whilst he was doing his best according to his lights, he felt that the military authorities were not giving him proper help and support, as when he had telegraphed for a brain-specialist they had only sent him an old R.A.M.C. Major!

Sir Victor's work in Egypt was splendid: and, as I say,

he would have no good word for shams. He went out to Mesopotamia against the wishes and advice of men of tropical experience who recognised that he was not at his age fitted for the arduous work in such a climate. He however refused to be deterred, as he said he felt he could do good, and recognised there was much which needed sweeping reform: a truthful criticism. The I.M.S. will always mourn his loss. This is written hurriedly in the lull of fighting: but I felt such an admiration for the sterling soul in the man that I felt bound to write.

From Capt. Allen, R.A.M.C., O.C. Military Hospital for Officers, Alexandria

July 9, 1917. Sir Victor came out in June 1915, but as there was such a demand made by surgeons here for him to see their head-cases from Gallipoli, he was quickly made a consulting surgeon. Previous to his coming out here, I only knew him on paper, and had the idea that he was selfish and difficult to work with. I very speedily altered my opinion. All the hospitals were full of very serious cases from the first landing at Gallipoli, and many head-cases were among them. Sir Victor was everywhere. One was particularly struck by the wonderful accuracy of his prognosis, and the very definite good results from his line of treatment. He was a particularly kind and delightful man to work with, always helpful and interesting and most generous. If he had any spare time, he was never idle: directly he arrived, he began to study the Egyptian language, and could soon make himself understood: he possessed a wide knowledge about things Egyptian, and investigated everything.

Of course his personal bravery was so well shown by his going to Mesopotamia: but a little incident which I saw in 1915 is worth giving. When the Arabs (Senussi campaign) were fighting at Matruh and Sollam, an officer in the Bucks Hussars was shot through the abdomen by a large Turkish bullet. . . . They wired to Alexandria for a consultant: Sir Victor was asked at 12 noon if he would go; the only way to go was 16 hours' journey by sea by a *trawler*; at that time a high sea was raging, and it looked to me as if he would not be able to go: but he rushed home, got his haversack and camera, dashed into the town to buy some films, and at 2 P.M. had left Alexandria. I heard afterwards that it was a particularly bad voyage; but he slept like a top: next day arrived at Matruh, saw the patient—who eventually came down to the Hospital and recovered—visited the various Field Ambulances, in-

vestigated some Roman remains of buildings, and returned in a trawler.

As you know, he made a kind of walking-tour round Gallipoli: landed somewhere near Suvla, visited nearly every Hospital and Field Ambulance, talked and lectured to the M.O.s right up to the trenches, and was passed on to the next unit. Everywhere he was hailed with delight, and I have frequently met men who saw him there and testify to his bravery and deep interest in the work. I cannot say more than how greatly his loss was felt by the Territorial and New Army doctors: all felt that he had our interest at heart: he recognised the very great difference experienced by men, who were accustomed to be regarded as somebody in their own small way, suddenly finding themselves atoms of one big machine: he did everything he could to encourage them and keep them interested in their work for their own and the work's sake.

III

India. Mesopotamia

He reached Bombay on March 25, 1916: visited Delhi and Simla: left Bombay on April 9, and reached Basrah on April 16. He died at Amarah, on July 16, in his sixtieth year.

I

From Port Said to Bombay. P. & O. s.s. Arabia

To Lady Horsley

March 16. The Canal is picturesque in its own desert way. Ismailya is a one-horse place, though the sweet-water canal enables the trees to make a fair show. The Australian pickets along the Canal were very pleased to see us: asked 'Where we were going to?' also 'Is there a War on?' also appealed for 'bakscheesh cigarettes'—dreadfully monotonous life. These Bitter Lakes are pretty: queer sort of trees and shrubs on the shore: the black sandy mountains in the background form the desert tableland south of the road from Cairo to Suez. The colouring of the sand here is very good, rich golden red, whereas that on the tops of the hills is pale Naples yellow: water bright blue of course. I am desolated that you are not here for the restfulness of this sort of glorified penny steamer trip: as this scenery is so different to the Delta. Very few birds unfortunately. . . . *March* 17. There are of course very few passenjares: a Madras Judge Oldfield, and his wife who is a great pianist, and I am going down at 11 to hear her play Schumann: then there are one or two colonels and officers who are all revelling in mufti, in accordance with the inscrutable army habit of cutting their profession at the first opportunity, a habit which is partly accountable for the prolongation of the war. I got a good story for a suffrage meeting out of Mrs. Oldfield. The native servant likes brains; one was ordered to cook a sheep's head; when it turned up at dinner, the brain was absent: when remonstrated with, he said, 'Dis one female sheep, have no brains.' I am afraid his

unnatural history did not save him: but it will be a good text. . . . Practically what I want to be informed about are (1) General Politics, (2) Temperance, (3) Suffrage. For (1), the Manchester Guardian and Pioneer are enough. . . . I have written to ——, answering his political letter and asking him to call when opportunity offers on the Mayor at Gateshead to find out whether there is anything in that move now. Also I am writing to ——, asking him to let me know if he hears of anything in the constituency line. I thought of writing to ——, but really I am not at all sure that he would help, and it is possible that he would divert the official animus from himself to me as a temperance worker. Of course too his employer's venom would be poured on my head: so I shall leave him alone. *March* 23. Aden was very picturesque, quite the mediæval mountain, the rock a fine volcanic business with all sorts of fantastic shapes and surfaces. Of course we had the usual rot of not being allowed to land, though we were there for six hours; very irritating, as they have some cisterns which I particularly wanted to see. . . . This boat is *distinctly* comfortable, and the captain a very decent old bird. I am wiring you to say that it is going to take Lord Hardinge home. Now I think that is good enough for you to secure berths on it, since we may be pretty sure that they will escort him at any rate. She is going to be scraped too at Bombay and therefore will be able to do her 17 knots. These ships are so put out of form that although you may find a good one in the list it does not follow she is *clean* and able to steam her pace as per reputation. . . . Do not forget to wire me on the day you leave, and your arrival at Marseilles and Dover respectively.

II

India. March 25—*April* 9

In Bombay, he was the guest of Lord Willingdon at Government House:

March 25. This house and surroundings would suit you to a T: and it 's miserable work, your not being here. I am writing in a beautiful verandah outside my suite of rooms: the verandah looks out over the bay to Bombay, which now 8 P.M. is a long row of glittering lights. . . . All the people very picturesque and bright, much more intellectual looking than the Arabs: the whole mise-en-scène much brighter and prettier than Egypt. . . . Of course unfortunately the servants cannot leave one alone, and want to dress you, etc., which is singularly distressing. In fact the whole idea here in India and feeling is that of being

run. It is interesting to appreciate the sensation of an autocratism and how completely and without any fuss the idea of independence and liberty is quietly destroyed. Egypt is nothing to it. *March* 28. A hurried note is all I can do. The work here is really gigantic, and I shall have an opportunity in the train on Thursday, when I must go to Delhi or Simla to see the topknots who require much help to wisdom. Froom very kindly has reserved you a 3-berth cabin on the port side, which is the side I came out on. The Arabia is very comfortable and an extraordinarily steady boat in a choppy sea. The only thing that worries me is whether you will have got my wires. . . .

Delhi, March 31. Here we are in the Commander-in-Chief's house—Sir Beauchamp Duff. He was very friendly: but as unfortunately the Viceroy is leaving, and he is moving his office to Simla for the hot weather, he says we must travel up there to-night with him to get sufficient time to talk things over with the D.M.S. I am afraid it is partly the Indian leisurely way of doing things. . . . I hope to see the hospital here this morning, if there is one for the war, and in any case the Station hospital, then run round the Fort and the chief Mosques. They lose a lot of time here, and the distances are of course considerable. The journey was very interesting, because when we woke up at 7 we were already in the plains running through a bare sandy country covered with a feeble forest; trees every 20 yards, half-dead, and no leaves anywhere: the leaves, having the decency to remember it is really winter, have dropped off, and are only now beginning to sprout again. The natives were cheerfully encouraging their herds to graze on what appeared to be nothing at all: and it was only now and then that the traces of cereal culture explained why they were in any condition at all except bones. Some 700 miles from Bombay, the old hill forts of the Mahrattas came in sight: the plain they looked over is anything from 30 to 100 miles before you come to another little range. . . . The costumes are good: the young ladies until they come out are fully attired in blue bead-necklaces, gold nose-ring, and a pair of bags literally: but they do not, of course, look in the least like savages, as my scrawl suggests, because they have so much refinement of carriage. . . . Lord Willingdon was most interesting about India, and is obviously doing first-rate work on the progressive line; more so than ——, who is doing the usual thing of saying we must go slowly. Considering the utter conservatism of India, naturally this is absurd beyond measure. Naturally he is hampered by money considerations. It seems to me that the financial people here are thoroughly asleep and not rising to the fact of War at all.

Bombay, April 4. We arrived just now from Simla: 2200 miles in 5½ days: not bad going. Am very fit in spite of considerable heat and unspeakable dust.

III

From Bombay to Basrah. Hospital ship Sicilia

April 9. I was horrified to find in your letter you proposed going 2nd class. It is quite *impossible*. I got the berths for you on the best side of the ship and close to the boats. Under no circumstances could you go second. I found on the Arabia that she was immediately dry-docking to scrape and buck her up, so that you could not be in a better ship as far as that goes. Then also she is extraordinarily steady. As regards ——, it would be nothing to us to pay the difference in her case, so as to keep the party together. . . . On board we have Col. Blenkinsop in charge, and five medical officers and four sisters, also Mr. Ridsdale: he is a greyish artistic-looking man who is out here to organise the Red Cross business properly, and has brought out 800 cases of stores from somewhere. He is a very decent chap and I hope to foregather with him to-morrow. At present things are looking up, according to the telegrams: but what our muddled plans really will be goodness knows, though I imagine that we must go to Bagdad to adequately settle the occupation of the country. If so, then there will be considerable need for him and his stores, because the Indian Government officials are playing the extraordinary game of pretending that India is not at war. Result, chaos of course: but what is worse is that organisation preparations which should be on a war scale are made on a peace one. Hence overwork, discontent, and non-fulfilment of duties, etc. Lord and Lady Willingdon were certainly exceptional people. He of course was Liberal member for Hastings. If it had not been for the Willingdons, who organised a kind of Red Cross which they called the Women of India's Branch, and furnished the troops with absolute necessaries, *e.g.* shirts, socks, etc., the Government's course would have left them to welter in the extreme hardships of this campaign. As it is, of course, very little has been done in reality for the men. Whisky everywhere. . . .

We returned from Simla the day on which Chelmsford arrived and Hardinge left. Therefore nothing much could be done in Bombay, because although the natives take very little interest in the doings of the Viceroy, etc., the streets are lined with police, etc., as if large cheering crowds were expected. Of course the Parsees turn out more or less, because they are the most cosmopolitan of this congeries of

races; and the wealthy Hindoos, of whom there are a fair number. Motor-cars everywhere. The next day I harangued the medical students, men and women together, at the Grant Medical College, and got in the usual points. I think it was interesting to them, and believe it has stirred up all sorts of people in authority to think about things and especially the alcohol question a little more. I have found a fearful condition of slackness, bad equipment everywhere. Due to the utter fear of the finance people and infamous system worshipped by ——. The Indian Government appointed a Commission to enquire into Mesopotamia: what they want is an enquiry into the whole of their medical business. Of course our people (the medical profession) are to blame also. They have deliberately gone on with shockingly inferior means, actually saying that they did 'pretty well.' . . . At any rate, the ridiculous Commission now enquiring, which consists of a Major-General Bingley and a Mr. Vincent, a Civil Service man having no medical knowledge whatever, have no means of getting at the truth.

April 15. *Rolling off the bar.* We could have got a pilot from the lightship: but no: lay to until the Syria, the corresponding ship, came down: and took her pilot back. By that time of course it was too late: not enough water: so we stuck, and only with great difficulty got back into deep water, where we are now lying and shall remain till to-morrow morning. Thus a whole day has been lost by ultra folly. Nobody seems to care. All this apathy is simply chronic stupidity of whisky drinkers. . . .

When I return to India I shall go all through it [the administration of the Indian Medical Service] to see the whole working and scheme, to see if possible how it can be righted. Above all to find out where the financial difficulty really lies. Of course it is fundamentally clear that the whole service is starved, and that the medical officers have been terrorised into incapable indifference. They think in terms of cost, and not of scientific care of their patients' interests. The extreme difficulty is to find out where the obstruction lies, whether inside the I.M.S., *i.e.* in their accountants' department, or at the Viceroy's Council, *i.e.* in the Finance Department. . . . To make matters worse, the Commission which enquired into the Civil Service, etc., has not reported and will not till well after the War. I cannot find from any of the men here what evidence they put up: so that avenue of information seems small enough. Perhaps I can put it right in Mesopotamia: there must be stacks of I.M.S. men there. It really is a very interesting constitutional question, this financial control, quite a chapter in itself because so fundamental. Matters of principle are always worth hundreds of detail.

To Col. McCarrison, I.M.S., Alexandria

April 12. I found at Bombay that the A.D.M.S. was an old friend: Col. Wanhill, who was at Univ. Coll. Hosp. He of course was very helpful: but above all General Knight, who commands the Bombay Brigade, and who poor man was being obliged to run the one port, through which the whole war is being conducted, on a *peace* footing. I never heard of such fatal views as to how to run a war. I arrived 25.3.16. After seeing the hospitals and base stores I was so appalled I talked to Knight: and having settled I must see the D.M.S. to regularise my position out here, I suggested I could hang on to the visit all my ideas on these points and urge immediate reforms. Knight, who was as keen as mustard, went one better, and insisted on my going to Delhi and seeing the Cder. in Chief as well. Arrived Delhi: C. in C. said, 'I am going to Simla: run round Delhi in motor': which I did and saw everything, though hurriedly: went in evening with C. in C. to Simla: at Kalka, got into his car and motored up the 58 miles. Wonderful ride: most people made seasick by the corners. . . . He was extremely kind to me and talked all these points for 36 hours. I think I helped him 'some,' at any rate he said I did, and wants me to cable ideas direct to him. . . . Of course the fatal error has been here as in Egypt: the Govt. has not recognised that these countries are non-productive. Why, I find they cannot even repair or sharpen surgical instruments, and as to ordinary equipment it simply is not in the country at all. I have suggested what could be made by energetic shoving, but a corps of hustlers is badly wanted. I left Simla in a motor car on railway wheels: bowled down the line delightfully. Continued at Bombay the struggle, with more result: and finally left on 9.4.16 Sunday midday. Things are shaping but there will have to be a complete reform and a powerful enquiry at the end of the War. In the meantime I urged on the C. in C. to draw materiel and personnel from Egypt where it was doing nothing. I believe he is following this advice.

IV

Mesopotamia. April 16-*July* 16

To Lady Horsley

Ashar, April 19. Goodness knows when you will get this, as I am just told letters posted to-night go by next week's mail! That is a loss of a week to start with. Then to Bombay six days, then home three weeks: probably five

altogether. Certainly the Indian organisation all round is astounding. After all the ideas we had about the constant efficiency of the Indian military system. Another delusion gone. Now is the moment (one hour only) to give you some idea of this place. The Tigris as we ascended it for about 60 miles is a broad yellow river with very picturesque creeks and date-groves innumerable. The cultivated strip, like Egypt (Upper), is very narrow owing to centuries of militarism and destructive invasions. The whole country requires reorganisation, and then the wretched inhabitants will have some chance of raising themselves out of savagery. Basrah itself I have not yet seen, as the inspection work is very heavy, and still more the writing notes and copies of the documents which show the actual work of the place medically for the last year: the town we are living in is really called Ashar. It is just like the squalid Arab town anywhere: mostly built of yellow flat Roman bricks, and mud-huts galore. Our people have policed and cleaned it into more or less respectability: but of course it is smells and dust and dirty people all through. . . . The house was built by a pious Islamite as a rest-house for pilgrims (there are a vast number of holy places up the Euphrates, and a tremendous business done in pilgrims). He is buried in the floor of the room marked × : I have indicated his grave also. Fortunately this was two years ago or more, so there is no odour of sanctity about him like Appleby church. The whole real traffic of the place is done not by roads and paths so much as by 'bellums': these are exactly like dug-outs, narrow and tituppy gondolas, with two Arabs in full costume poling and cursing every one they meet. In the main stream and up the creeks are wonderful 'mahelahs'; these are large trader boats; a solitary Arab squats on the tiller, perched up like a mediæval ship. Then in the fair-way are anchored all the ocean-going steamers which draw not more than 18 feet and can get over the bar. All this is very picturesque: infinitely more so than Egypt. Of course the discomforts are enormous, chiefly and wholly owing to our own unspeakable folly, stupidity, and criminality. An enormous amount has to be done, and now is being done, I hope. I have discussed everything here too, and I think with the same success as in India. One most important change I urged at Simla has been already made: so I am hoping for more.

I must take this round the swamps to the P.O. The frogs here chirp like the thousands of sparrows roosting in the Mahomet Ali Square: and I am glad to see in the swamps fish which eat the mosquito larvæ, but of course only 'some.' The blue jay, a lovely bird, is common; also a bird that sings like a thrush; so there 's plenty to see.

To his Daughter

Basrah, April 23. . . . It was a great contrast to come from all the large scale work [Bombay and Delhi] to this curiously savage hole. The people here are mostly Arabs of the conventional type, but very wild and savage-looking for the most part, as if they had combined a hard struggle for existence with chronic piracy and a dash of murder in it now and again. One of the engineer subs here was sent up the river some 70 or 80 miles in a large launch to assist a grounded barge. When he got there and tied up, he heard a 'loud noise,' and discovered that the rival Arab tribes of the district were having their annual battle. So many volleys poured over his head that he moved down until the battle was over. Next day they were all at work again.



This is 'unrest,' a disease which is practically physiological not pathological to these people. Of course they are gloriously lazy. Owing to the high rudder and tiller, one gentleman I saw this morning steering with his head, so he could sit still and enjoy life. There are some industrious people here who on the contrary seem always at work: I don't know what they are, but possibly Persians. The small mosque here . . . the interior was very impressive, because it had pointed arches and four enormous pillars about 10 feet in diameter, while by the side of the Kibla was the pulpit, like that of a refectory, in the wall, and with a little Early English arch over it. The old caretaker Muezzin person was greatly pleased with my appreciation of it, and so also the 20 idle cutthroats, who were most respectful when I took my boots and gaiters off, and accompanied me round to see all fair.

To Lady Horsley

Basrah, April 25. . . . I have unearthed a terrible number of things; have cabled twice to Simla and once to Keogh already. The Commission here enquiring into the medical arrangements, and with no medical man on it, is going along in its futile way. In consequence of what I saw in India, I ultimately cabled to know if the field dressings were sterilised, and received the staggering reply No. Of course I cabled immediately that it should be done, and have written as

well. It never entered into my head for a moment but that they were. . . .

About 40 *miles below Amarah, April* 27. We sailed in due course yesterday morning on the little hospital boat, and slept in one of the cots under the awning. After Qurna, we entered the great marshes which extend for about 50 miles on each side of the river. Qurna is the place where the tree of knowledge grew (at the apex of the Garden of Eden): unfortunately the top was blown off the other day, and it now is like *this*, standing on the quay with a mud-wall behind it and the rough encampment of the stores of a military post of Sikhs. The inhabitants and cattle are in and out of the water all day, consequently the men towing the big trade-boats imitate Adam faithfully. The small boys who are innumerable and who hurry to the bank expecting donations of biscuits and scraps from the Tommies are given the head-dress and a few feet of stuff for a galabea: the results are too comic: every stage in the evolution of a complete costume. . . .

The bird life is very pleasant. Large numbers of herons of all sizes, black and white large crows, and innumerable kingfishers: great colonies of the common (in the East) black and white kingfisher, greyer than the Egyptian one and very cheerful: chirps about all over the place: and this morning very early they were sitting on every bush and



lump at the water's edge, waiting for their breakfast to come along: they were in pairs, like Darby and Joan, one looking up stream the other down, so as to miss nothing. Every available bank was full of their nesting holes. They have no fear of the boat. Other occupants of the banks are turtles, who cock their heads up like bitterns, and as you see them at the Zoo. They had for the most part no intentions of going into the soup-tureen, and so gently slid off into the water when we really got within hail. . . . Yesterday I saw at least a dozen greater bitterns, like the one we saw at St. John's lake, but larger. It was a great pleasure to see it, as it is nearly extinct in Lincolnshire.

We tied up for the night about 3 miles below Ezra's

tomb. This is a most charming tomb, nominally of Ezra, who said he was to be buried near the sea, so they worked down the river till they came to where a tide was just perceptible, so they decided it must be the sea, and popped him underground. Jolly glad, I expect, not to go another step with the old gentleman. The dome was a beautiful blue enamel, with a little crown of simple diaper, and the neck of yellow bricks with more diaper, and the whole thing surrounded by a delicately arcaded wall and palm-trees.

At the Front, April 30. The question now is what is going to be done. At present we are close (2 miles) to the firing line, and it remains to be seen whether the Turks will come on or not. After we left Amarah, we had a disagreeable incident: a man, a stoker, either fell or jumped overboard: and though he tried to swim to the bank, he was carried away in the swirling current and drowned. This river is a boiling stream of pea-soup, and though a fine waterway needs a lot of attention. We met corpses of men and horses floating down our drinking water: and on the mud banks was a huge tarpon, quite 7 feet long, and some shark-like fish higher up, killed I suppose by a shell exploding in the water. This country of course is most forbidding. Nothing but flat ground covered with rough grass and camelthorn. I am writing this outside the mess-tent of the 24th Indian Field Ambulance, where we have fortunately got in. I drew tents at Bombay luckily: and when we arrived here we had to camp on the river bank, lit a fire, and dined sumptuously off tea, biscuit, and horribly salt bully beef. The insect life here would drive you screaming mad. On the hospital ship, the last two nights, directly the lights were turned up, we were invaded by millions of flying beetles. The table, food, heads, faces and hands covered with a thick swarm, including enormous black beetles. The only thing to do was to eat like mad and turn out the lights. They got into the beds and felt like old crumbs and grit. Fortunately they none of them really bit. They only got annoyed when entangled in your hair, when they sometimes in sheer worry I suppose held on with nippers. My mosquito curtain so far has done wonders, and I was only bitten once at Basrah, by sitting writing at dusk. Most people have suffered from sand-fly: so far I am all right too, so the net must be a good one. The flies of course are very bad. This camping ground has had many horses over it: and last night the Army Corps sanitary staff with which we camped actually moved on to old cavalry ground. I never saw such stupidity. Fortunately now we have got into an ambulance camp which is on good dry clean ground, and shall stop as long as I remain here.

I have inspected four ambulances so far already, and hope to do the front line and the others during the next four days, but it is slow work owing to the lack of transports and extra-

ordinarily nasty climate. Everybody is very kind: but the starvation policy and methods of the Indian Govt. are *terrible* and only exceeded by the lies in the House of Commons.

Shaik Saad, May 5. I came down here because nothing was doing at the front, and this place is designed to develop medically like Amarah. It is where one of the very worst fights took place, and disgraceful conditions to which the sick and wounded were subjected, with torrential rains on the top of it all. It consists of Arab mud-houses, in one of which I have a room: which has been remudded and petroleumed, so it is very comfortable. We have an amusing puppy, cocks and hens, swallows, and sparrows and cats in the little farmyard, and in my room when they are so disposed, so there 's no lack of company. I am staying in a very nice mess, that of the 61st Indian Stationary Hospital, commanded by Major Goodbody, I.M.S., very successful and popular, running the show with great acumen and aplomb. His staff, Indian and British, are also very efficient and pleasant, so we are on our feet as usual. . . . I had to walk in the morning about ten miles out and back to visit some cavalry and other field ambulances: but so far, though the heat is curiously burning, it is not so exhausting as might be thought, if you drink a fair amount of (boiled) water. One of the horrible lâches of this business is that the fighting men are not even yet adequately supplied with water. I see Austen Chamberlain said in the House that probably an enquiry will be held. If so, I hope and pray that I shall be allowed to give evidence. The bogus Commission out here now may possibly furnish a confidential report, as they were appointed departmentally, but I gather Chamberlain meant a large affair when we all come home again.

Of course the inevitable alcohol is always cropping up. This force drinks far less than the Egyptian one. The large majority of this mess are regular teetotallers, and at lunch to-day five out of nine present were non-smokers. . . . A typical case is that of the —— here. Some six weeks ago, when the men were really half-starved and getting the old-fashioned rations with the result that scurvy, diarrhœa, and beri-beri are relatively common events, the extremely precious steamer-room was taken up by enormous and numerous cases of champagne, port, whisky, etc., for the officers' mess. This morning I found that in that one regiment alone 46 men reported sick, and the rest are languid, tired. Of course because of the wicked neglect of the water we have sporadic cases of cholera in every camp practically, though if the water is boiled there is no danger. Of course the habitual whisky-drinker thinks it sterilises the water and he doesn't care anyway but chances it. . . .

I am hard at work here trying to get the surgical conditions improved: it is hard, seeing that every elementary rule of

sanitation is avoided (not necessarily evaded) and there is no medical officer except Goodbody who dares take a strong line to protect his patients: and as for the administrative officers, it seems as if their one idea is how to get the poor fellows away rather than how to protect them from the commonest evils. Of course they themselves are paralysed because the chief command has never provided transport of ordinary materials, let alone engineering materials for water supply, etc. But here the catalogue is endless. Suffice it to say that everything wants looking into. If it had not been for the War Office letter of June 1915, I could hardly have done a stroke of work except by sheer bluff. I had better shut up, as I am drafting memos, and they take such a time. *PS.*—An O.C. of an infantry regt. has just sent in to see me about conditions! This is instructive!

Shaik Saad, May 15. . . . Real swelter, last two days: 108-110 in shade: with exquisite moonlight nights. Packing a small bag makes you stream. The grasshoppers are enormous here, like locusts but less stomach, like Huxley's real lover the male Rotifer. They stroke their noses like cats. *This* is his actual size, but they are not like locusts, though the largest have wings. They are very friendly, quite unlike the flies, which adopt every known means of biting you. Yesterday a very handsome person in the shape of a tarantula sort of spider, with wonderful shirt and waistcoat of white and light chocolate stripes, arrived. We encouraged him in the hope he would dine off the various other visitors. He was evidently well armed, as he displayed no emotion at our presence. There is no doubt the Army and Navy mosquito-net is very good: I have watched from the inside lots of sand-flies using dreadful language on the outside because they couldn't get in: and my numerous bites are all acquired in the evening before I can make tracks for my little bed. The quinine every day prevents any of the biters' attentions in the way of fever. . . . I see that in the House of Commons the people are being fooled to the top of their bent. There is NO medical transport of the sick and wounded, except one small steamer. They are still brought down in *stinking* filthy store-barges, very often with no water-tank, and never more than one foul latrine. It really is incredible until you have seen it. That liar —— said there was ice and fans in the hospitals.[1] I believe there



[1] A statement to this effect had been made in the House of Commons.

is ice at Basrah, but we are over 300 miles, and the hundreds of patients here and everywhere above Amarah have no beds even. Cholera patients lie on ground or on stretchers. How these scandalous falsehoods are concocted I cannot imagine. The enquiry will have to find that out. I do hope the fall of Kut has been taken up by the public: but I suppose it is limited to 'our sympathy goes out to the gallant men,' etc. etc. *May* 16. I had hoped to get down to Amarah to-day, but no boat has yet arrived. The new D.M.S., Treherne, is coming up to Amarah to discuss with me the transit of 'surgical cases.' Willcox has also arrived, and is coming up with him. As I see no increase of transport during this month, there is no chance of a proper medical service. What lines the discussion therefore will take heaven knows. Even here at Shaik Saad, where a great medical station is designed, we cannot settle anything because the corps Staff will not issue any precise orders on the movement and constitution of the units. I have drawn out fully what the units will require in the way of equipment, and left it with the active O.C.'s here while I go to Amarah: but suspect I shall be back again in two or three weeks, unless the Turks cut us all off and take us to Constantinople like brother Townshend.

Just been on the roof like Sister Anne to see if any boat is in sight. 'Answer in the negative.' Was greeted on arrival



by a cow on the roof of the next house: and she proceeded to walk up the 'street' from roof to roof. . . . They have large coracles here, which carry up to ten tons. Thurston



saw one towed by a mare swimming while the foal was on board, *thus*, and the Arabs paddled to steer. Had to break

off, as Col. Acland Troyte, commanding the Devons here, came to settle things, having written the enclosed amiable letter. Must shut up and wash for dinner.

Amarah, May 21. As there is a layer of fluid all over one's body all day and night, it is difficult to write except on a folded handkerchief as a guard. I shall stop here until something definite occurs at the front. . . . What to do God knows, as everything is wrong here, and nothing but astounding work in India and at home can possibly put things right. I trust my telegrams to the Commander-in-Chief and the D.M.S. have started the ball rolling, because they have wired to say that more M.O.'s, etc., are coming from Egypt as I suggested. Also material.

Amarah is quite a picturesque corner of the river. The river is quite 250 yards broad, and a powerful current at the corner, where the stream divides. The date-groves on the other side of the river are very pretty, with undergrowth and large flowers growing 6 feet high. We used to have them at Willesley. At a distance, they might be taken for true hollyhocks, but they are nothing like them really, and at home they only grew about 2 feet high. The flower is like a Xmas daisy. The nightingale was singing, not so well as at home and much less continuous. These coppices are being made into convalescent places for officers, and on the outskirts only, I fear, for the men. We went across in the usual gondola, which is rougher here, and held by enormous nails like a Turkish door. That reminds me—the tympana of the doors here are full of diaper work which is exactly Norman, *i.e.* ours: I suppose post-crusadal. . . . Treherne seems to be aware of the follies and crimes, and simply is here to try and smooth things out. Lord knows where you are. I have not had any letter of yours since March 23, I think.

To Col. McCarrison, in Alexandria

Amarah, May 25. I have had a very interesting time in acquiring new experiences, *e.g.* the smell of cholera, etc. etc., but of course terribly depressing ones. I am pleased with our new D.M.S., Treherne, he is certainly a movie. Of course the evils are so incredible that it takes a man some time actually to realise what is going on: and until you have realised it to the full you cannot suggest remedies. This campaign will like the rest of the War gradually pull out as we require: but I see no chance of getting to India for my round, before going home, under less than a year. . . . I can quite see that the I.M.S. as a service is temporarily played out. I say temporarily, because if it were completely re-organised it could be made a fine thing, but you would be

grey before that occurred, not to say a white-haired cherub, if such things can be. I left Shaik Saad with great regret, as Sweet and all the other people were so very pleasant, and moreover there was a chance of getting *constructive* reforms carried out. . . . Of course it is intensely hot here: prickly heat, etc., all the go. Food here at Amarah, 'fair to middling': was very short. Quarters now comfortable in a house.

To Lady Horsley

Amarah, May 26. We have had a grand relief here—the blowing of the North wind. It has made lovely coolnesses at times, and one is dried so quickly that the discomfort of the liquid layer is gone. So also have most of the insect world. This afternoon I had to go to the cholera camp here, and afterwards walked along a willow-bordered branch of the Tigris by which fig-trees and a few vines are cultivated more or less, chiefly less. It was a lovely evening, and the black and white kingfishers were having a great time on a shoal. . . . I have just heard to-day that —— had actually had the hardihood to refuse the Y.M.C.A. offer of canteens on the ground (among others) that they would not sell whisky to the officers. . . . —— visited recently a Brigade which has been reduced to a shadow, in which he thanked them for their fighting and hardships, and said he was doing his best to reward them by getting up beer! The men are furious at this insult, and say they came to fight for the Empire and not for half a pint of beer. I suppose he is just one of the alcoholics with which our Staff is planted thickly, and poor wretched man thought he was giving pleasure by his wretched jape. Considering the intense sufferings of these men it was beyond endurance to be promised a glass of beer. . . .



Amarah, May 30. . . . I am perfectly fit. Of course it 's no end hot, but that doesn't worry me like the work, which is endless and excessively difficult. As regards the heat, the sparrows sit like *this*, and the fowls not only do the same but stand in a draught (when that can be found) holding their wings out so as not to warm their bodies. Fortunately, when it has mounted up day after day and you think it 's going to bust the thermometer, the N. wind blows up, as to-day for instance, and then although it 's a hot blast it acts like the fans which the liars in the House of Commons said the poor chaps in the hospitals had got, and at any rate

you are dry, which for work and especially writing is a great comfort.

I enclose ——'s kind nothingnesses in answer to my request that if he heard of anything, would he communicate to you. If you get the opportunity, it would be just as well to ask him to find out if the Liberal party intend to oppose me as they are doing all the time, as then my course would at least be clear. I note his statement with satisfaction, that no constituencies are being nursed, because that at any rate would mean a much fairer show when the General Election does come. It would be a better run for it at any rate.

Now about the U.D.C. Of course I quite agree, and as regards Ponsonby's attack on Morgan I have written a quiet protest pointing out that all Morgan has done is to publish evidence of the results to be obtained from militarism and conscription: that the German atrocities he never claimed to be *not* due to militarism: and that since the Kriegsbuch was published in a time of peace without the slightest objection from the German people, it was obvious that they were suffering from a certain degree of moral decadence: and that Germany was the only nation which had published such instructions to its officers. As to Morel, of course it is unpardonable: and Dr. Synge's letter (which had already appeared in War and Peace, and I think the Common Cause as well) is quite knocked out by the Wittenberg report. Wittenberg was one of the camps she visited after it had been cleaned up: and she does not, I think, allude to the horrors at all.

A Sikh has just brought in your most welcome wire to say you have got home all right. That is very great: and I suppose the floodgates of speech are now open wide. It must feel very pleasant to be home again, and I am now perfectly thankful, especially as the two boys will both be there to meet you. I can quite imagine it, and it is a delightful dream. My love and respects to them all. . . . I think I will turn in now, the hurricane lamp is an abominably bad light and collects all the beetles round for miles. If you don't look out they get into bed with you and make it gritty. Love to all the party. How glad they must be to see you.

Amarah, June 5. I have had a splendid mail this week, quite a shower of letters, so am naturally very bucked, because I *now* know what is going on with each and all. I find that is the real trouble of being away. . . . Now for details, 'orribil deetoils. This upside-down sort of place is going it strong in the way of a hot boisterous wind and burning sun. If you get well in the wind's eye, you are pleasantly cooled, because it dries you up far quicker than

the sun can make you perspire, so you keep moving ∴ cooling ∴ smiling. As to 'our' health, we are quite well and robust. As to 'our' servant, he is the very idlest scoundrel I have met, who having evidently served some globe-trotters realises he cannot do me. He serves some purposes, develops extraordinary maladies, which is common among these followers here, because they live like pigs, bathe in the muddy water and drink it at the same time, and you can't stop them because they having no education whatever are per conseq. pigheaded. Now the other servant we got, and who died of the cholera in our camp at 24 F.A. the Front, was a substantial sort of person; and we are left with this little villain. A few days ago he swelled all over, much to 'our' annoyance: it all went down with iron and arsenic, and he probably is an opium-eater. Fortunately I see to everything myself: and so he has his uses, base though they are. As to 'our' food, it may be 'wholesome, but it (certainly) is not good.' The ration bread is excellent: we have now got plenty of jam: the flies won't go near the butter, which is eatable—very odd they don't like it, but they won't look at it—which is very fortunate: good eggs: quaker oats (you *would* laugh to see me eating porridge per force, though I am gradually getting to partly like it): once in a blue moon cornflour and tinned plums. . . . The mess here are very agreeable fellows, mostly Irish and quite amusing: we occasionally go out in a bellum to go down and walk into the mudflats and see the crops! Yesterday went for a walk up the river bank among the palm-trees, etc., and came to a shrine-mosque which the Hindoo sepoys had defiled. It was I suppose out of revenge for the sniping and robbery which still goes on because, chiefly, our people are distinctly slack in arranging the camp defences. Night before last I was dining with the mess of the 12th Indian Hospital: their mess is a mosquito-net room on the river bank under the palm-trees, and very pleasant indeed: with the coffee arrived a shot, and then on each bank the sentries began potting steadily. It's all right as long as *they* fire outwards, but they don't always. There had been 2 Arabs tried the day before, and will be hung to-day: so I daresay they were trying to get some of their own back. Then the jackals started their Promenade Concert: but they never keep it up for more than ten minutes, so it 's small and early with them. By the aforesaid shrine, I heard a black partridge (really a francolin) so tracked him and then put him up: it was very fine, as he got up with the hen, only a few yards away. . . . I am sending you 19 prints, to show you the country, the water-supply, and conveyance of the sick and wounded.

To his Daughter



The forward rake of the boats' masts is *not* bad drawing: it is their picturesque rule. Also colour in your mind's eye the cap of the minaret with beautiful blue enamel, and here and there yellow. The insects, though the largest of their kind, I have been obliged to omit as out of proportion to the boats.

Amarah, June 8. . . . This here town of Amarah seen from the bridge of boats (Turkish) makes quite good attempts to be picturesque: the ladies in the foreground are paddling a farm-boat, which brings up vegetables and fuel, brushwood and dried cowdung. There are mud fortified farmsteads all along the banks. Not a few have palm-groves ½ mile long, with figs, limes, etc., under, so that they really form very pleasant but exceedingly rough walks, for the original deep-ploughed furrows are left and covered with grass and weeds a foot or two high. Of course they make wonderful jackal covers, and the demoniacal row those ladies and gentlemen made last night was worthy of a gramophone close where you didn't want it. Inside the walls, which are only about 2 feet thick but wondrously hard, they have malting huts, ovens, cooking places, and a sakkya of modern construction, made in England as a rule, for distributing water to the farmstead and farm generally.

The children are most amusing here, always fooling. The adults here, though frequently getting wet of course, always try to tuck their skirts up, and squat to wash their hands. I saw a person aged four imitating her betters, when a companion pulled the back of her tucked-up nitey, with fatal results. They *both* roared with laughter, and rolled about in the muddy water like prawns. Boys will be boys, and those of Amarah act up to this great principle most completely.

The Bazaar here is quite good, because it is a dark lofty tunnel of Arab houses. At the entrance is an interesting café, quite a Teniers interior: I may get a photo of it, but have no films to spare till I get some from Bombay: the fireplace for boiling the coffee has a wonderful fluted hood over the charcoal, some 8 feet high. All the coffee-pots here

are Persian, with enormous spouts like a toucan's beak: and they also sell Rose's lime-juice with sugar and water. This is a popular drink. Considering the Army demand too, Mr. Rose must 'be doing well as any lunatic can tell.' Our company here has been increased by a lady of very mature age named Dugga. She has taken a fancy to sleep under my table, and is always ready for *more* water. She is a fairly well-bred Persian greyhound, quite an acquisition, black. . . . Well, I must adopt the gentle shout of the undergrads at the Cambridge Suffrage meeting, 'PLEASESHUTUP.' Farewell.

To Lady Horsley

Amarah, June 12. . . . I find I *am* being of considerable use. I get letters and visits (numerous) from people I never heard of, recounting changes on the lines I laid down as *principles* in Simla. I really do not think that it ever occurred to the Ind. Govt. to deal with the Army and Medical Services on *principles* at all. Only expediency. It is very curious, and a wonderful study of constitutional government. I am extremely anxious this vile rot should cease, so that I may get to India to see more on the spot. This peripheral business, however, is of course the finest test, because it shows how absolutely helpless the expedientist is when he has to direct things which are out of his immediate (short) sight. We had yesterday arrive just on a flying visit the officer sent out from England to replace —— at Simla. He lunched here on his way through. Two or three colonels were here too, and he rather put me in a 'difficulty' with the rest by insisting on speaking privately to me for 20 minutes in my room. He really wanted to know what I thought of the whole condition of things medically, and what wanted doing. He had got hold entirely of the right end, namely, the outrageous state or rather absence of *necessary* transport, and in fact seemed to me a 'very intelligent fellow Bob.' . . .

We are all very fit here, those who are teetotallers. The weather, as the General says in Our Boys, 'It is *hot*': and the funny thing is that everything feels hotter than you expect, because of course it is about 110°. For instance if I want to look inside a book and open it, the inside pages feel hot and make you nearly jump. Of course in the sun it is 150° and over: and if you inadvertently touch iron you do jump, and probably two or three times, 'not once and again, but again and again and again.' Of course the evenings are charming, though now warm: the moonlight on the river and the sunset lights over the palm-groves when we sit down to dinner on the mud roof are very charm-

ing. When the insects (which vary) are in full blast, and we are bombarded by locusts and beetles, there comes over our heads a good-sized night-jar, like an express train, who dines above us if not exactly with us.

Amarah, June 19. I am going up to the front again to-morrow to *complete* the surgical equipment. The incredible slowness with which things move here is very difficult to put into words. The convoy of the sick and wounded is *still*, as I wired to Simla, 'grossly insanitary and inhuman.'



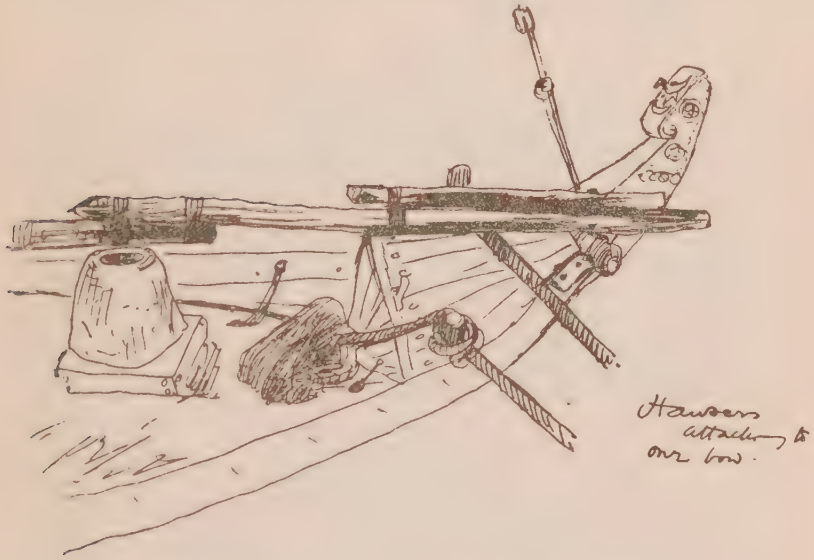
(Cock sparrow hard at work tearing up my matting *in* this room to get lining for his nest.) What is so infernal is that this is an Indian Govt. show. Now in India soda-water is every one's perquisite, as it were. It is as common as ordinary water. *Out here* the convoys of sick, with a temperature of 120°-137° under the awnings, have 3 or 4 doz. sodas for 315 sick and convalescents. The answer is, 'Oh, there are no more bottles': these scoundrels in India never taking the slightest trouble during these 20 months to provide bottles and machines. But there you are: this (in the face too of provision of whiskies and sodas for the staff) is but one of the 1001 scandals of this campaign. My business now is of course to see that the surgical ship is in full swing, and to arrange for two sisters to come up. . . .

One of the Augean Stables that I found in full swing and General Treherne was scandalised with, and supplied the administrative power I do not possess, was the so-called Convalescent Depot. Photo 1 is this filthy hole into which no less than 1424 men were put convalescent. It was really an old granary used as a stable by a mountain battery. They cleared out the battery, scraped the ground a little, and the same afternoon put in convalescents, etc. It was exactly like the drawings we had of 1815 of Napoleon visiting the Hospital at Jaffa. The men were actually of course living on this horrible mud floor, and had their food-tins on it, etc. Next to it, though separated by a narrow roadway, was a huge compound (photos 2 and 3) full of sick horses and remounts. When I was there the mud and filth was partly drying up: see a mass in the foreground of 3, in front of the Arab sayces. The smell was obvious: but I was told by the M.O. in charge that for 2 months it had been awful, and no remonstrances could get rid of the horses, though the convalescents were made sick by it.

. . . Give my best respects all round. Send me out 20 Alcohol and Human Body: I can easily get rid of them. They have frankly told me here that the different messes were panic-stricken by my advent: thought I should

get up and physically and morally denounce them, and as they knew they had no excuse for their whisky drinking they were proportionately uncomfortable. Now they all want me to stop, although I have denounced them over and over again. *PS.*—Moreover they are drinking less.

On board T2, going to Front, June 22. T2 is a large sort of passenger tug; and lashed alongside are two mahelas and their Arab and Sidi boys (descendants of slaves, Africans of course) crews. The prow of the port one is quite pleasant, as well as the furnishings of the forecastle. The prow is quite a work. It is carved ad lib. with geometrical designs:



on the top is a bronze corroded Turkish crescent and star: nailed to the middle of the star by a big bolt is an absurd bird, sort of Caran d'Ache, really to serve as a belaying-pin, which the head and tail admirably fulfil. The yard like all Arab yards, a wonderful compound of odds and ends. The coiled hawser behind the prow, completed by a blanket, makes a hut under which two hens pass a happy day, especially after they have been lowered into the river to cool. By the side is a calabash tobacco-pipe, sort of 'ship's toothbrush'; any one who has tobacco to put in the funnel end is entitled to suck at the other. The mud oven is about 3 feet high and a foot wide at the top. In the evening it is very pretty, as they heat it by wood and the flames come gaily out at the top, to the imminent destruction of the whole fleet: but barring Rameses III. I haven't seen a ship on fire, though

they are laden with compressed chaff, matting, etc. etc., and of course no one has any fire appliances. The crew all have coffee in the afternoon, or tea. The tea-things and little coffee cups and spoons are all solemnly packed away again in a little square box with compartments and ornamented with strips of perforated and bordered steel. They eat their chupatties baked in the oven dipped in the tea, and spread wonderful carpets and thick padded rezais, sort of mattress quilt, to sleep on. The poor old mahelas leak somewhat, and day and night at intervals have to be bailed out in pailfuls, as of course they won't run to a pump; although such is the cost of wood, the expense of building a mahela is about £800.

To his Daughter

112*th Indian Field Ambulance, Filayieh, July* 1. . . . We have got Mr. Nebuchadnezzar's furnace heated 'seven times hotter than before.' The N. wind really is bucking up, but as it blows over several hundred miles of mud flat, etc., it is no longer a mountain breeze from glaciers, but something quite the reverse. However, it moves the air, and that is distinctly worth having, even though of course there is dust everywhere. We sleep usually for half an hour before lunch and an hour after, so 'contemplation' is easy as an excuse. All the insects go to sleep too at the same time: except the house-flies, of whom a hardy half-



dozen survive chiefly to annoy us if sleeping. However, thank goodness, we keep one or two tarantula spiders, like *this* person, who live up at the top of the tent-poles and dash

round like Bedouins and mop up the flies which always towards evening tend to roost on the roof-canvas. Talking of insects, I was writing a Report outside the tent last night, when a passing acquaintance hurried by, chinchilla-grey bonnet and terracotta and black shawl. He or she explored





various plants, and then selected a bare stalk, not really up to weight, but that did not stop him climbing nimbly to the top and beginning to eat the said stalk from the top downward. He ate the whole thing, descending all the time, and even finished the stump in the ground. He reminded me of the drunken rioter in Hogarth's picture sawing off the signboard. . . . We also have a very tame sort of wagtail, grey body and wings and dark red tail, which drinks at our coolers—Persian water pots, porous, which leak slowly into saucers. The only other birds are the sand-grouse and bee-eater. It is rather a land of surprises. The ground is covered with a melancholy-looking grey scrub, bushes about a foot high, and here and there some rather larger ones. These yesterday morning were covered with flowers exactly like Christmas roses : quite pretty, and much appreciated because unexpected.



All the grey scrub makes it very difficult to spot things at a distance, and the mirage renders it absolutely impossible about 3 miles off. Consequently our guns are rather outed, and carry on a kind of morning and evening hate. The shell-bursts in this funny soil give all sorts of shapes : I wanted to photo them through a loophole ; but the Turks are very handy with their machine-guns on our loopholes : and no one is allowed to open them up, except when there is a strafing going on. . . . The Turkish aeroplanes being twice as fast as ours do what they like ; and dropped a note expressing the hope that if (as happened on this side) they had to evacuate their trenches, they hoped we would not claim we had ' carried them.' A nasty bit of sarcasm richly

deserved by us. . . . I hope all our young friends are doing well, especially my two sons! Farewell.

To Lady Horsley

112*th Indian Field Ambulance, Front, July* 5. It is now quite obvious that nothing can or will be done here till October. I am therefore arranging to go back to India and do some of the inspecting work I have got to do at the end of this business, and return here in say September (end). My plan is to go from here down to Shaik Saad, stop there a couple of days; go on to Amarah, stop there two days and pick up my rest of kit. At Basrah I shall probably be kept a week for a boat, and in any case shall have to hold no end of pow-wows with people who do not necessarily understand, even when you have got them face to face. Treherne's plans here are really destroyed, the only thing that is surviving and clearly must survive is my surgical hospital ship, P8. They are fixing it to the left bank, which I asked for as the non-dusty one, but which I was assured was impossible. It is really almost absurd for any unit to make any arrangement: it is certain to be upset: and probably, once in a new place, will be sent back to its old one; which has just happened to the only clearing station we had here, though Treherne's plan involved four such stations being planted *here*. Of course this sort of thing is inevitable in a hand-to-mouth arrangement born of non-preparation. I only hope that the Mesopotamian Enquiry, when it comes off, will have sufficient sense to understand all these causes of failure. As regards my programme. It is quite plain that I have to make a localised tour from Bombay to inspect stations—Poona, Nagpur. Now I think I can get all that done during August and September: so as to enable me to make a straight run round—Karachi, Lahore, Lucknow, Calcutta, Hyderabad, Madras, Ontacamund, Ceylon—when all this infernal stupidity is over.

I must be off now to see the D.D.M.S., to try and find out whether I can get down to-morrow night to Shaik Saad. There is nothing going on, except the evening aeroplane comes over and bombs us as he likes, because we have nothing to do him with. 'This is War.' Blooming health, in spite of continuous 110-120 in shade.

On July 14, Colonel Fell visited him in Amarah, and had tea with him. On that day, he said that he was not feeling very well: but he was still at work. 'I was talking to him,' one of his friends writes, 'two days before he died. He was

full of the bad conditions everywhere, and of the improvements that should be made. He then told us that any influence he might possess would be used to the utmost to get all medical arrangements put on a better footing. He was very thorough in everything he did, not sparing himself in the slightest, and often working throughout the hottest part of the day, when most men (much younger men too) were resting. When he went down from the front, he took with him all the evidence he could collect—such as specimens of lime-juice issued to the troops, etc.—all carefully labelled, dated, and tabulated, ready for when he drew up his report.' His notes on these matters have not reached his home.

On the 15th, his temperature was 103°; and so soon as the hottest time of the day was over, he was moved into No. 2 British General Hospital. Captain T. M. Body, R.A.M.C., who had been admitted to it two days before, writes:

> There is no one for whom I ever had a greater respect. He came to Mesopotamia as a Consulting Surgeon, but at a time when there was practically no surgery; so he in consequence had to take rather a wide view of his work; and I think decidedly that there was no one who could have done that work with more enthusiasm—and what is more important, such good results. His enthusiasms were boundless; and in a country which is not noted for energy, this characteristic was invaluable, as not even the most slothful of us could sit down and see a man nearly 60 years of age doing more than us, some twenty or more years younger. Like all good socialists, he was an absolute autocrat, consequently he got things done, often much to the disgust of the regular officials at the irregularity of the method. He argued that if things were necessary for the health of the men, and these things could not be got through the ordinary channels, then we must find other means. But when I proceeded to tell him of the few things I had stolen for my operating-theatre, he thought that I should have had recourse to other means. We lost a man, fearless and honest, who was doing something, and would have done more. As a member of the medical profession I feel this more, as he was one of the very few medical men who had the ear of the public—(you who live in London must shed your provincialism before you can appreciate this)—and would have used his voice to improve and help our profession, and help it at a time when we want so much help. . . .

On Saturday, July 15, about 5 P.M., I saw Victor Horsley carried into the Hospital in a carrying-chair, sitting up, looking fairly well. The impression left on my mind was that he considered that he was being made rather an unnecessary fuss of. His temperature on admission was about 103°, and rose the same evening to 105° or higher. His medical officer was Barwell, a University College man, who was on the junior staff in Victor Horsley's time; a thoroughly good physician; and everything was done that human skill and ingenuity, and the means at disposal, allowed: all the available ice, which I am afraid was not much, was used: but in spite of it all, the temperature remained high.

The Hospital was on the left bank of the river: a good stone building, originally a Sheikh's palace. In 1915, it was captured and held very gallantly by the Norfolks: a mere handful of men held it for several days, before reinforcements could arrive up the river: from this exploit, it had got the name of Norfolk House. Major Mackworth, I.M.S., who likewise was a patient in the Hospital, writes:

The first time we met was when he visited our Indian General Hospital. Lt.-Col. Anderson, the O.C. of the Hospital, introduced him. I failed to catch the name of the colonel wearing red tabs; and took him to be some inspecting combatant officer. Just then the O.C., being called away, asked me to do the honours and show the officer round. We entered the operating-theatre. I showed him the wonders therein: an artery forceps—'an instrument for pinching blood-vessels when they are cut'—along with some other instruments in daily use. I still remember that amused smile, and his remarks—'How marvellous'—'How very interesting.' We proceeded to the wards. I shudder to think of the offhand way I demonstrated 15 trephine-cases under my charge. It was not till afterwards one realised his identity, and what an enormous *faux pas* had been perpetrated. He visited our hospital on the next day, whereupon I apologised for not having recognised who he was. 'That 's all right,' says he: 'you must excuse me my little joke.' After that we became very friendly; he was a frequent visitor, and one benefited much from his useful advice.

On my remonstrating with him for going out in the heat of the day on one occasion (3 P.M. June, Mesopotamia is decidedly warm) with only a puggri, cloth coat on, and no spinal pad, his rejoinder was, 'Are you a teetotaller?' Sad to say, shortly after this we were patients together in



SIR VICTOR HORSLEY'S GRAVE AT AMARA.

(From a photograph by Dr. Andrew Balfour).

the Hospital where he died. I will ever remember him as one of the most kindly and courteous gentlemen I have ever met. One never felt the slightest restraint in discussing with him even subjects which were his speciality.

Even on the Saturday, he was still at work. There is a letter in the British Medical Journal, September 2, 1916, from Amarah :

> I have just been to the Hospital where Sir Victor Horsley was lying ill ; to find that he passed away a few minutes ago. He had only 3 days ago returned to Amarah from the front, and seemed to be in his usual health and spirits. Only yesterday, Saturday morning, I had some conversation with him on a subject which was interesting him, the provision of hospitals with laboratories : and he then set out to walk back to his camp, which was about a mile and a half away across the Tigris bridge and over the open plain. The shade temperature was over 110°, and the atmosphere humid. When he got to his tent, he heard there was a sick officer he knew, about half a mile further on ; he went on to see him, and examined him carefully. He complained of headache later in the day, and was admitted to the Hospital on Saturday evening. . . . I can speak of his untiring energy and the loyal devotion and singleness of purpose shown in his every action up to but a few hours ago. Those who have met him recently are aware that he had framed a very severe indictment against those he believed were responsible for the mismanagement which he thought characterised some aspects of the campaign. It is only three days since he returned from the front, and he was about to return to India for a spell to prepare his report.

Major Grey Turner writes :

> I happened to come across him just as he was about to be admitted to Hospital. Though he was looking ill, he was as cheerful as ever, and at once began to talk about some arrangements of mutual interest. He told me that up to that Saturday he had been absolutely well, and that he had not felt the heat too trying. I am told that it was a very usual thing to see him in Amarah during the heat of the day, and there are many who thought that he exposed himself too much.

On Sunday, July 16, his temperature rose to 107° : he became unconscious, and died that evening. It is certain that he died of heat-stroke : there was a rumour that he also

had paratyphoid fever : but the blood-tests gave no support to this belief.

Mr. Martin Swayne, in his book ' Mesopotamia,' describes the funeral :

> Shortly after we left Amarah, the news came that Sir Victor Horsley had died. It was in a season of extreme heat, when death comes suddenly in many forms. Eighty officers attended his funeral. He had a coffin. Wood was precious in Amarah. There were some other bodies sewn up in blankets. A long, dusty march of a mile to the cemetery, a shallow earth grave, a brief ceremony, the same for all, and a weary tramp home in the sun—that was the final picture. There is one more detail to add, and that is the lovely playing of the ' Last Post ' over the graves.

Palms were laid on his grave. Later, a cross of white marble was placed over it. He had gone to Mesopotamia knowing that he might die there. He said to Lady Horsley, just before he left Egypt, ' Don't worry about me : I don't matter : I can't live for ever : it 's the young that matter.'

PUBLISHED WRITINGS

1880. Arrest of development in the left upper limb, in association with an extremely small right ascending parietal convolution. By H. Charlton Bastian and Victor Horsley. Brain, April 1880.

1882. On 'Septic Bacteria' and their Physiological Relations. Appendix to 11th Annual Report of Local Government Board.

1882. On the existence of Bacteria, or their Antecedents, in Healthy Tissues. With Dr. F. W. Mott. Journ. Phys., iii. 188.

1882. Articles 'Bacilli' and 'Zyme' in Quain's Dictionary of Medicine.

1883. Note on the Patellar Knee-jerk. Brain, Oct. 1883.

1883. Four cases of injury to the brain in man, illustrating very exactly the position of the cortical motor centres. Journ. Phys., iv., supplement, p. 5; Proc. Phys. Soc., Dec. 13, 1883.

1884. Case of Occipital Encephalocele in which a correct diagnosis was obtained by means of the induced current. Brain, Pt. xxvi., 1884.

1884. On the existence of sensory nerves and nerve-endings in nerve-trunks, true 'nervi nervorum.' Proc. Roy. Med. Chir. Soc., N.S., i. 196. See also Proc. Physiol. Soc., June 7, 1884.

1884. On Substitution as a means of restoring Nerve Function, considered with reference to Cerebral Localisation. Lancet, July 5, 1884.

1884. Consensual movements as aids in diagnosis of disease of the Cortex Cerebri. Medical Times and Gaz., Aug. 16, 1884.

1884–1890. Annual Reports to the Committee of the Brown Institution.

1885. The Thyroid Gland: its relation to the pathology of Myxœdema and Cretinism, to the question of the surgical treatment of Goitre, and to the General Nutrition of the Body. Brit. Med. Journ., Jan. 17, 1885.

1885. The Motor Centres of the Brain, and the Mechanism of the Will. Royal Institution Lecture, March 27, 1885.

1885. Acute Septic Peritonitis: operation: recovery. Med. Times and Gaz., Sept. 26, 1885.

1886. Abstracts of Brown Lectures: two on the thyroid gland, three on epilepsy. Lancet, 1886, ii. 1163, 1211.

1886. Brain Surgery. Address at Brighton. Brit. Med. Journ., Oct. 9, 1886.

1886. Epilepsy produced in guinea-pigs. Proc. Med. Soc. Lond., 1886, x. 86.

1886. (1) On the Relation between the Posterior Columns of the Spinal Cord and the Excito-Motor Area of the Cortex, with especial reference to Prof. Schiff's views on the subject. (2) A further and final criticism of Prof. Schiff's experimental demonstration of the relation which he believes to exist between the Posterior Columns of the Spinal Cord and the Excitable Area of the Cortex. Brain, April and October, 1886.

1886. Translation of Koch's monograph, 'On the Investigation of Pathogenic Organisms': published in 'Recent Essays by various authors on Bacteria in relation to disease.' Edited by W. Watson Cheyne. London, New Sydenham Society, 1886.

1886. On an apparently peripheral and differential action of Ether upon the Laryngeal Muscles. With Felix Semon. Brit. Med. Journ., Aug. 28 and Sept. 4, 1886.

1886. A case of Suppuration of the Mastoid Cells. With remarks on the prevention of septic embolism in such cases. Clin. Soc. Trans., xix.

1887. Notes on the pathology of inveterate Neuralgia of the Fifth Nerve: illustrated by cases treated successfully by avulsion of the nerve close to the skull. Trans. Odontol. Soc., June 1887.

1887. Remarks on Ten Consecutive Cases of operations upon the brain and cranial cavity, to illustrate the details and safety of the method employed. Brit. Med. Journ., April 23, 1887.

1887. Trephining in the Neolithic Period. Journ. Anthropol. Inst., xvii. 100.

?1887. Recherches Expérimentales sur l'Écorce Cérébrale des Singes, démontrées par une expérience actuelle devant la Société de Biologie de Paris. Par MM. Charles E. Beevor et Prof. Victor Horsley. London, H. K. Lewis (undated).

1887. A Note on the means of Topographical Diagnosis of Focal Disease affecting the so-called Motor Area of the Cerebral Cortex. Amer. Journ. Med. Sc., April 1887, pp. 342-69.

1887. A Minute Analysis (Experimental) of the various movements produced by stimulating in the Monkey different regions of the Cortical Centre for the Upper Limb, as defined by Prof. Ferrier. With C. E. Beevor. Phil. Trans. Roy. Soc., vol. 178, B, 1887.

1888. Evidence before Parliamentary Committee on Pleuropneumonia and Tuberculosis in Cattle.

1888. Note on some of the Motor Functions of certain Cranial Nerves, and of the three first Cervical Nerves, in the Monkey (*Macacus sinicus*). With C. E. Beevor. Proc. Roy. Soc., xliv. 269.

1888. A Record of Experiments upon the Functions of the Cerebral Cortex. With E. A. Schäfer. Phil. Trans. Roy. Soc., vol. 179, B, 1888.

1888. A further Minute Analysis by Electrical Stimulation of the so-called Motor Region of the Cortex Cerebri in the Monkey (*Macacus sinicus*). With C. E. Beevor. Phil. Trans. Roy. Soc., vol. 179, B, 1888.

1888. A case of Cerebral Abscess successfully treated by operation. With Dr. Ferrier. Proc. Med. Soc. Lond., xi. 232.

1888. A Case of Tumour of the Spinal Cord : removal : recovery. With Dr. Gowers. Trans. Roy. Med. Chir. Soc., lxxi.

1888. Reports on the outbreak of Rabies among Deer in Richmond Park during the years 1886-7. With Mr. A. C. Cope. Eyre and Spottiswoode, 1888.

1888. On Hydrophobia and its ' Treatment,' especially by the Hot-air Bath, commonly termed the Bouisson Remedy. Brit. Med. Journ., June 9, 1888.

1888. A Case of Paralytic Rabies in Man ; with remarks. With Dr. J. S. Bristowe. Clin. Soc. Trans., xxii.

1888. A Case of Thrombosis of the Longitudinal Sinus, together with the Anterior Frontal Vein, causing localised foci of Hæmorrhage which produced remarkably localised Cortical Epilepsy. Brain, April 1888.

1889. Die Functionen der Motorischen Region der Hindrinde. Deutsche Med. Wochenschrift, No. 38, 1889.

1889. On Rabies ; its treatment by M. Pasteur, and the means of detecting it in suspected cases. Address to the Epidemiological Society. Brit. Med. Journ., Feb. 16, 1889.

1889. Report on the control of hæmorrhage from the Middle Cerebral Artery and its branches by compression of the Common Carotid. With Walter G. Spencer. Brit. Med. Journ., March 2, 1889.

1889. On the value of Differences observed in the Temperature of the two sides of the body, as symptomatic of cerebral lesions. Brit. Med. Journ., June 22, 1889.

1889. Ein Fall von Rückenmarksgeschwulst mit Heilung durch Exstirpation. Von Dr. W. R. Gowers und Victor Horsley. Uebersetzt und den Mitgliedern der Deutschen Gesellschaft für Chirurgie bei dem 18. Congress gewidmet bei Dr. Bernhard Brandis. Berlin, Hirschwald, 1889.

1889. On the Central Motor Innervation of the Larynx. With Felix Semon. Brit. Med. Journ., Dec. 21, 1889.

1890. On the relations of the Larynx to the Motor Nervous System. With Felix Semon. Deutsch. Med. Wchnschr., 1890, No. 31.

1890. Du Centre Cortical Moteur Laryngé et du Trajet Intra-Cérébral des Fibres qui en émanent. With Felix Semon. Ann. des Mal. de l'Oreille et du Larynx, xvi.

1890. An Experimental Investigation of the Central Motor Innervation of the Larynx. With Felix Semon. Phil. Trans. Roy. Soc., vol. 181, B 57, 1890.

1890. An Experimental Investigation into the Arrangement of the Excitable Fibres of the Internal Capsule of the Bonnet Monkey (*Macacus sinicus*). With C. E. Beevor. Phil Trans. Roy. Soc., vol. 181, B 52, 1890.

1890. A Record of the Results obtained by Electrical Excitation of the so-called Motor Cortex and Internal Capsule in an Orang-outang (*Simia satyrus*). With C. E. Beevor. Phil. Trans. Roy. Soc., vol. 181, B, 1890.

1890. Sur la chirurgie du système nerveux central. Translation of Horsley's address at Int. Med. Congress in Berlin. Mercredi Médical, Aug. 27, 1890.

1890. Note on a possible means of arresting the progress of Myxœdema, Cachexia strumipriva, and allied diseases. Brit. Med. Journ., Feb. 8, 1890.

1891. On the Analysis of Voluntary Movement. Nineteenth Century, June, 1891.

1891. Ueber den Gebrauch der Elektricität für die Localisirung der Erregungserscheinungen im Centralnervensystem. With Francis Gotch. Centralbl. f. Phys., Jan. 31, 1891.

1891. On the Mammalian Nervous System, its Functions, and their Localisation determined by an Electrical Method. The Croonian Lecture for 1891. With Francis Gotch. Phil. Trans. Roy. Soc., 1891.

1891. Die Function der Schilddrüse: eine historisch-kritische Studie. Contributed to the Virchow Festschrift, Bd. i.

1891. Remarks on the various surgical procedures devised for the relief or cure of Trigeminal Neuralgia (Tic-douloureux). With James Taylor and Walter S. Colman. Brit. Med. Journ., Nov. 28, Dec. 5, Dec. 12, 1891.

1891. On a Case of Traumatic Abscess in the neighbourhood of the left angular gyrus, with right hemianopsia and word-blindness, treated by operation. With C. E. Beevor. Trans. Ophthalmol. Soc., xii.

1891. On the Changes produced in the Circulation and Respiration by increase of the Intra-cranial Pressure or Tension. With Walter Spencer. Phil. Trans. Roy. Soc., vol. 182, B, 1891.

1891. The Structure and Functions of the Brain and Spinal Cord. Fullerian Lectures for 1891. London, Griffin and Co., 1892.

1892. Topographical Relations of the Cranium and Surface of the Cerebrum. Royal Irish Academy: Cunningham Memoirs, Dublin, 1892, vol. vii. pp. 306–55.

1893. Introduction to 'The Chemistry of the Blood; and other Scientific Papers by the late L. C. Wooldridge. Arranged by Victor Horsley and Ernest Starling.' London, Kegan Paul, 1893.

1893. A Clinical Lecture on Paraplegia as a result of Spinal Caries (Compression-Myelitis) and its Treatment. Clin. Journ., March 15, 1893.

1893. The Surgical Treatment of Nervous Diseases. A Post-Graduate Lecture. Med. Press and Circular, April 5, 1893.

1893. The Discovery of the Physiology of the Nervous System. Address at meeting in Nottingham of the British Association. Med. Press and Circular, Sept. 27, 1893.

1893. Discussion on the Treatment of Cerebral Tumours. Address at Newcastle. Brit. Med. Journ., Dec. 23, 1893.

1894. A further Minute Analysis by Electrical Stimulation of the so-called Motor Region (Facial Area) of the Cortex Cerebri in the Monkey (*Macacus sinicus*). With C. E. Beevor. Phil. Trans. Roy. Soc., vol. 185, B, Pt. i., 1894.

1894. On the Mode of Death in Cerebral Compression, and its Prevention. Quarterly Medical Journal, July 1894.

1894. The Destructive Effects of Projectiles. Royal Institution Lecture, April 6, 1894.

1895. The Differential Diagnosis of Cerebral Tumours: with some remarks on treatment. Clin. Journ., Feb. 13, 1895.

1895. Five cases of Leontiasis Ossium, in three of which the disease was removed by operation. Practitioner, July 1895.

1895. The Results of Operative Treatment of Injury or Disease of the Cervical Vertebrae. Lancet, Aug. 17, 1895.

1895. Introductory Address delivered at the opening of the winter session of the Sheffield School of Medicine. Quarterly Med. Journ., Oct. 1895.

1896. Traumatic Neurasthenia. A lecture at Univ. Coll. Hosp. Clin. Journ., March 4, 1896. See also Proc. Med. Soc. Lond., xx. 216.

1896. The duties and functions of the General Council of Medical Education and Registration. Med. Magazine, v. 109.

1897. On the Diseases of the Spinal Cord requiring Surgical Treatment. Clin. Journ., Jan. 13, 1897.

1897. On the relations between the Cerebellar and other Centres (namely, Cerebral and Spinal) with especial reference to the action of antagonistic muscles. With Dr. Max Löwenthal. Proc. Roy. Soc., vol. lxi., 1897.

1897. Torticollis. Clin. Journ., June 30, 1897.

1897. On the effects produced on the circulation and respiration by Gunshot Injuries of the cerebral hemispheres. With Dr. S. P. Kramer. Phil. Trans. Roy. Soc., series B, vol. 188, 1897.

1897. Short note on Sense-organs in Muscle; and on the preservation of Muscle-spindles in conditions of extreme muscular atrophy, following section of the motor nerve. Brain, Pt. lxxix., 1897.

1897. Das Sauerstoffbedürfniss des Organismus. Münch. Med. Wochenschrift, No. 19, 1897.

1897. Methylenblaufärbung der Blutkörperchen. Münch. Med. Wochenschrift, No. 23, 1897.

1898. A Contribution towards the Determination of the Energy developed in a Nerve Centre. Presidential Address to the Neurological Society. Brain, Pt. lxxxiv., 1898.

1898. On the Excitable Fibres of the Crus Cerebri. With Dr. C. E. Beevor. Fourth International Physiological Congress, Cambridge. Journ. Phys., xxiii.

1898. On Penetrating Wounds of the Central Nervous System. Clin. Journ., xii. 261.

1898. The true interpretation to be placed on the Medical Acts. Suppl. to Clin. Journ., Feb. 9, 1898.

1898. On the work of the General Medical Council. Abstract of Address to the Manchester Medico-Ethical Association. Lancet, Dec. 24, 1898.

1899. Roman Defences of South-East Britain. Royal Institution Lecture, Feb. 3, 1899.

1899. On Injuries to Peripheral Nerves. Practitioner, Aug. 1899.

1899. On the rational treatment of Goitre. Address to the North-West London Clinical Society, Oct. 27, 1898. Clin. Journ., March 8, 1899.

1900. The Effect of Alcohol on the Human Brain. Lees and Raper Memorial Lecture. See Brit. Journ. Inebriety, iii. 69.

1901. A Study of the Degenerations observed in the Central Nervous System in a case of Fracture Dislocation of the Spine. With Dr. F. H. Thiele. Brain, Pt. xcvi., 1901.

1902. On the Pallio-tectal or Cortico-mesencephalic System of Fibres. With Dr. C. E. Beevor. Brain, Pt. c., 1902.

1903. The Purposes and Maintenance of our Universities. Address at Birmingham. Birmingham Medical Review, October 1903.

1904. On Tactile Sensation. Practitioner, lxxiii. 581.

1904. Evidence before Parliamentary Committee on Physical Deterioration.

1905. On the Intrinsic Fibres of the Cerebellum, its Nuclei, and its Efferent Tracts. With R. H. Clarke. Brain, Pt. cix., 1905.

1905. On a Trigeminal-Aural Reflex in the Rabbit. Brain, Pt. cix., 1905.

1905. An Address on Hæmorrhoids. Clin. Journ., Feb. 15, 1905.

1905. The Cerebellum: its relation to Spatial Orientation and to Locomotion. The Boyle Lecture for 1905. Bale, Sons, and Danielsson, London, 1906.

1906. Note on the Tænia Pontis. Brain, 1906.

1906. Upon the Orientation of Points in Space by the muscular, arthrodial, and tactile senses of the upper limbs, in normal individuals and in blind persons. With Dr. R. Townley Slinger. Brain, Pt. cxiii., 1906.

1906. Note on apparent Re-representation, in the Cerebral Cortex, of the type of Sensory Representation as it exists in the Spinal Cord. With Dr. Colin K. Russel. Brain, Pt. cxiii., 1906.

1906. On Dr. Hughlings Jackson's Views of the Functions of the Cerebellum, as illustrated by Recent Research. The Hughlings Jackson Lecture for 1906. Brain, Pt. cxvi., 1906; Brit. Med. Journ., 1907, i. 803.

1906. On the Technique of Operations on the Central Nervous System. Address in Surgery, Toronto. Brit. Med. Journ., Aug. 25, 1906; Lancet, 1906, ii. 484.

1906. Address on Temperance: given in Toronto. Medical Temperance Review, October, 1906.

1907. Alcohol and the Human Body. With Dr. Mary Sturge. Macmillan, London, 1907. Fifth edition, 1915.

1907. Evidence before the Royal Commission on Experiments on Animals.

1908. Note on the existence of Reissner's Fibre in Higher Vertebrates. Brain, Pt. cxxi., 1908.

1908. The Structure and Functions of the Cerebellum examined by a New Method. With R. H. Clarke. Brain, Pt. cxxi., 1908.

1908. The Operative Treatment of Optic Neuritis. Address at Oxford. Ophthalmoscope, Sept. 1908.

1909. On the Cervical Spino-bulbar and Spino-cerebellar Tracts, and on the question of Topographical Representation in the Cerebellum. With A. Salusbury MacNalty. Brain, Pt. cxxvii., 1909.

1909. Description of the Brain of Mr. Charles Babbage, F.R.S. Phil. Trans. Roy. Soc., Series B, vol. 200, pp. 117-31, 1909.

1909. A Clinical Lecture on Chronic Spinal Meningitis: its Differential Diagnosis and Surgical Treatment. Brit. Med. Journ., 1909, i. 513. Translated in Journ. de Méd. et de Chir. Prat., June 10, 1909.

1909. Alcohol and the National Life. An address at Whitefield's Tabernacle, Jan. 1909.

1909. The Cerebellum. The Cavendish Lecture. West London Medical Journal, 1909.

1909. The Function of the so-called Motor Area of the Brain. The Linacre Lecture. Brit. Med. Journ., July 17, 1909. Reprinted: British Medical Association, London, 1909.

1910. The Mesencephalic Root of the Fifth Nerve. With Dr. Otto May. Brain, October, 1910.

1910. Die chirurgische Behandlung der intrakraniellen Geschwülste, im Gegensatz zu der abwartenden Therapie betrachtet. Vortrag, gehalten auf der 4. Versammlung der Gesellschaft Deutscher Nervenärzte am 6 Oktober, 1910. Deutsche Ztschr. f. Nervenh., 1911, xli. 91. Also published in English.

1910. The Topographical Diagnosis of Tumours of the Cerebral Hemisphere. University College Hospital Magazine, i. 1, June 1910.

1910. A Paper on Optic Neuritis, 'Choked Disc,' or 'Papill-œdema.' Address at Belfast. Brit. Med. Journ., March 5, 1910. Reprinted: British Medical Association, London, 1910.

1911. Preliminary Note on experimental investigations on the Pituitary Body. With Dr. Handelsmann. Brit. Med. Journ., Nov. 4, 1911.

1911. On some of the biological and statistical errors in the work on Parental Alcoholism by Miss Elderton and Professor Karl Pearson, F.R.S. With Dr. Mary Sturge. Brit. Med. Journ., Jan. 14, 1911.

1911. Factors which conduce to success in the treatment of otogenic Brain-abscess. Proc. Roy. Soc. Med., 1911–12, v., Otol. sect., pp. 45-72.

1912. Preliminary Report on the Forcible Feeding of Suffrage Prisoners. With Agnes F. Savill, M.D., and C. W. Mansell Moullin, F.R.C.S. Lancet, Aug. 24, 1912.

1914. Evidence before the Royal Commission on Venereal Diseases.

1914. Present-day lessons from the life-work of Mitchell Banks. The Sir William Mitchell Banks Memorial Lecture. Medical Press, Oct. 14, 1914.

1914. On the Reform of the Vital Statistics of the Nation. Brit. Med. Journ., Nov. 7, 1914.

1915. The Brotherhood Movement and the War. Brotherhood Journal, April 1915.

1915. On the Alleged Responsibility of the Medical Profession for the reintroduction of the Rum Ration into the British Army. Brit. Med. Journ., Jan. 30, 1915.

1915. Remarks on Gunshot Wounds of the Head. Brit. Med. Journ., Feb. 20, 1915; and Proc. Med. Soc. Lond., 1915.

INDEX

A

Aberdeen: Hon. Degree given to Horsley by the University, 211.
Académie de Médecine de France, 196.
Acland Troyte, Colonel, 326.
Acromegaly, Pierre Marie's study of, 123.
Adams, Mr. William, 117.
Advancement of Medicine by Research, Association for, 148.
Alcohol, 200, 211, 230-254: results of small quantities, 231-233: reduction of alcohol in hospitals, 231, 236: alcohol and the national life, 239: effects of parental alcoholism on children, 239-243.
'Alcohol and the Human Body,' by Horsley and Dr. Mary Sturge, 236-238, 252, 303, 332.
Alcoholic paralysis, 231.
Alexandria, 297-312.
Allbutt, Sir T. Clifford, 191.
Allen, Capt., 311.
Amarah, 326-333, 336-340.
Ambidexterity, Horsley's, 263.
American Physicians and Surgeons, Congress of (1888), 136.
—— Surgical Association, 139.
Ammunition (1914): experimental study of, 288.
Anæsthetics: Horsley's experiments on himself, 40, 232: on animals, 96, 147: methods of administering chloroform, 174, 184: teaching to students, 187, 191: Government Committee, 191: Hyderabad Commission, 174.
Anæsthetists, Society of, 174.
Annandale, Prof., 120.
Antagonistic muscles, experimental study of, 164.
Anthropological Institute, 124.
Antiseptic surgery a cause of the reduction of alcohol, 236.
—— wax, Horsley's use of, 120.
'Anti-vivisection,' 52, 81, 83, 89, 147.
Anzac Medical Society, 302.
Arderne-Wilson, Capt., 309.
Arm-area: removal of, 194.
Armour, Mr. Donald, 117.
Armstrong, Lord, 48.
Arrest of correlated development of brain and hand, 28.
Artists' Corps, the, 22, 24.
Aschaffenburg's experiments with alcohol, 231.
Ashar, 319.
Aspinall, Major, 302.
Assistant-Professorship of Pathology, Univ. Coll. (1882), 43.
Association of Fellows of Royal College of Surgeons, 220.
—— of Members of Royal College of Surgeons, 221.
Athenæum, membership without ballot, 157.
Australian Hospital, Wimereux, 294.
Avebury, Lord, 68.

B

Babbage, Mr. Charles, F.R.S.: Horsley's study of his brain, 188.
Babtie, Sir William, 307.
Bacteria, 'or their antecedents,' in healthy tissues, 28.
Ballance, Sir Charles, 117, 121, 127.
Barker, Mr. Arthur, 119.
Barlow, Sir Thomas, 201, 235.
Basrah, 320.
Bastian, Dr. Charlton, 27, 116, 159.
Bateman, Dr. A. G., 214.
Batt, Mr. Ernest, 78.
Beck, Mr. Marcus, 30.
Beevor, Dr. C. E., 29, 95, 100-110, 141, 150, 165, 170.
Berlin, visit to (1881), 41: International Medical Congress (1890), 138.
Bernard, Claude, on the ductless glands, 56.
Berry, Mr. James, 200.
Bircher, Dr., 64.
Birmingham, temperance addresses in, 244.
Blenkinsop, Colonel, 316.
Board of Agriculture, 80, 88.
Body, Captain T. M., 337.
Bombay, 314.
—— to Basrah, 316-318.
Bond, Mr. C. J., 29, 30, 39, 45, 266, 289.
'Bouisson Bath,' the, 82.
Boyce, Prof. Rubert, 149, 159.
Boyle Lecture at Oxford, 179.
Boys, Prof. Vernon, 155.
'Boys inherit their brains from their mothers,' 204.
Bradford, Sir J. Rose, 51.
Brain, early papers on disease or injury of, 28, 49: experimental study of localisation of function (1884-1890), 90-113: first papers on brain-surgery, 121, 122, 136. Other addresses on brain-surgery: Berlin, 138; Newcastle, 150; Toronto, 183; Cambridge, 193; Berlin, 196; London, 290; Alexandria, 306.

Bramwell, Sir Frederick, 48, 266.
Breccia, Signor, 306.
Bristowe, Dr., 77.
British Association, Nottingham meeting (1893), 151.
—— General Hospital, Amarah, 338.
—— Hospital, Wimereux, 289-294.
—— Medical Association, 222-229, 275.
Briton Rivière, Mr., 84.
Broadbent, Sir William, 235.
Broca Museum of Anthropology, 124.
'Broca's convolution,' 91.
Brodie, Prof. T. G., 51.
Brotherhood Movement, the, 256.
Brown Institution, 50-53, 78-82.
Brown-Séquard, Dr., 123, 142.
Brunel, Isambard, 3, 12.
Brunton, Sir T. Lauder, on rabies, 69, 70.
Buckland, Miss, 125.
Bullet-wounds of brain, experimental study of, 154-157, 288.
Burdon Sanderson, Sir John, 17, 51, 69-73.
Buxton, Dr. Dudley, 29, 30, 32.
Buzzard, Dr. Farquhar, 186.

C

'Cachexia strumipriva,' 57-67.
Cadbury, Mr., 306.
Caillard, Mme., 301.
Callcott, Sir Augustus, 3.
—— John Wall, 3.
Cameron Prize, Univ. Edin., 151.
Cardiff Medical Society, 146.
'Cardinal points' of the National Insurance Act, 225.
Cartwright Lectures, 163.
Cavendish Lecture, the, 192.
Cavendish Square, the Horsleys' house in, 142.
Cerebellum, clinical and experimental study of the, 177-178, 179, 189, 191, 192.
Cerebral abscess, operation for, 118, 133, 137, 154, 200.
—— compression, clinical and experimental study of, 137.
—— hæmorrhage, experimental study of, 137.
—— tumour: results of treatment, with and without operation, 196, 201: choice of operation, *ibid.*
Cervical spinal disease, operative treatment of, 157.
Chalice, the: question of risk of infection, 29.
Chappell, Mr. Salter, 40.
Charcot, Prof., 55, 121.
Charlotte Street, Fitzroy Square (1882), 42.
Charterhouse, 14.
Chemistry, the foundation of medical education, 159.
Cheyne, Sir W. Watson, 44, 123.
Children, Horsley's love toward, 270, 274.
Christian Basis of Human Action: a Brotherhood address, 259.
Christiansen, Dr., 166.
Church Congress, Folkestone (1892), 146, 213.
Clark, Sir Andrew, 68.
Clarke, Miss Alys, 304.
—— Mr. R. H., 178, 184, 189.
Clinical Society's Report on Myxœdema, 63.
Cobbe, Miss Frances Power, 147.
Cohnheim, Prof., 42.
College of Surgeons, 36, 49: War Museum, 155: Council, 171: Fellows and Members, 220.
Colman, Dr. Walter S., 142.
Compression of the brain, clinical and experimental study of, 153-157.
Compression-myelitis, operative treatment of, 149, 200.
'Condiments,' arguments against, 29.
'Confusion-theory,' Beevor's and Horsley's, 101.
Consultant, M.E.F., Horsley appointed, 301.
Convulsive centres, Nothnagel's theory of, 122.
Coomber, Miss Helen, 291.
Cope, Mr. A. C.: report on rabies among deer, 81.
Cornwall, holidays in, 26, 32.
Coroners' law, 223.
Cox, Dr. Alfred, 213, 223.
Craig, Dr. Maurice, 242.
Cranbrook, 5, 14.
Cranbrook School, 13.
Cranial measurements in relation to brain-surgery, 125, 146.
Cretinism, sporadic and endemic, 54-67.
Crile, Prof., 186.
Croonian Lecture, 139.
Cruelty to Animals Act (1876), 127, 187.
Cunliffe, Mr. John, 51.
Cunningham Memoirs, Royal Irish Academy, 146.
Curling, Mr., 54.
Cushing, Prof. Harvey, 137, 180.
Cutlack, Mr. Frank, 121.

D

Death-certificates: need of strict veracity, and of privilege, 174, 209, 211, 234.
Decompression, operation for, 137, 184, 197.
Deer in Richmond Park: 264 deaths from rabies (1886-87), 81.
Delhi, 315, 318.
Democratic Control, Union of, 288, 306, 328.
Demonstration of experiments on animals, 160.
Dendy, Miss Mary, 240.
Dental Surgery, London School of, 191.
Derby, the (1915), 300.
'Disinterested Management' of public-houses, 246.
Distemper: reduced by enforcement of muzzling, 79, 80.

Dog Owners' Protection Association, 84-87.
Dominion Temperance Alliance, 184.
Douglas, Dr. W., 224.
Doweswell, Mr. G. F., 79.
Drewitt, Dr. Dawtrey, 58.
Drinking-water not sterilised by alcohol put in it, 249, 323.
Du Maurier, George, 147.
'Dum-dum' bullets, 288.
Dunhill, Dr. James, 200.
Dunlop, Major, 302.

E

Edinburgh, Horsley's lecture in, 151.
Eisselsberg, Dr. von, 64.
Elderton, Miss, 239-243.
Electrical currents in the body, 157.
Electrolysis in experimental study of cerebellar nuclei, 189.
Electro-motive changes in spinal cord, experimental study of, 134, 140.
Elliot Smith, Prof., 178.
Embolism: ligature of internal jugular vein, 121.
Encephalocele, notes on a case of, 49.
Engine-ruled paper, Horsley's use of, 105.
Epidemiological Society, the, 77.
Epilepsy, experimental study of, 122, 123, 146, 160.
Erichsen, Sir John, 121.
Ether-vapour: local action on laryngeal muscles, 111.
Ewald, Prof., 20.
Exophthalmic goitre, 158, 200.
Experiments on animals, demonstration of, 138, 160: Horsley's evidence before Royal Commission, 186.
Ezra's tomb (Mesopotamia), 322.

F

Fagge, Mr. Hilton, 54.
Falmouth, sea-trip to, 25.
Feeding-movements, a theory of, 104.
Fell, Colonel, 336.
Female Suffrage, 195, 201, 203-211.
Fenwick, Mr. E. Hurry, 66.
Fergusson, Inspector-General, 250.
Ferrier, Sir David, 93, 111, 137, 178, 179.
Filayieh (Mesopotamia), 334.
Filliter Exhibition, the, 25.
Finzi, Dr. Neville S., 199.
Fleming, Dr. George, 69, 84.
Flemming, Dr. Charles, 275.
Flight-movements, a theory of, 109.
Flowers for the Hospital, 35, 37.
Fontainebleau, holiday at, 25.
Forcible feeding of Suffrage prisoners, 200, 204.
Foster, Prof. Carey, 16.
Fothergillian Prize and Lecture, 157, 158.
Fox, Dr. E. L., 66.
France, the Temperance movement in, 234.
Fritsch and Hitzig, 92.
Fry, Sir Edward, 169.
Fuller-Maitland, Mr. J. A., 71.
Fullerian Professorship and Lectures, Royal Institution, 139, 146.

G

Galen, and the experimental method, 90.
Gallipoli, Horsley at, 302, 304, 312.
Galton Laboratory for National Eugenics, 239.
—— Sir Francis, 125.
Galvano-cautery, Horsley's disuse of, 115.
Gardner, Dr., of Melbourne, 164.
Gasserian ganglion, removal of the, 142, 165, 190, 192.
General Elections of 1910, 195.
—— Medical Council, 158, 165, 216-220.
Germany: walking tour (1877), 18: Leipzig, 41: Berlin, 41, 138, 196, 197: German statements about the War, 286, 288.
Gibson, Dr. Lockhart, 67.
Glioma and glio-sarcoma of the brain, 138, 150, 184, 201.
Godlee, Sir Rickman J., 59, 89.
Goodbody, Major, I.M.S., 323.
Goitre, 54-67.
Goltz, Prof., 20, 94, 138.
Gotch, Prof., 18, 95, 128, 139.
—— Mrs., 5, 22, 129.
Gower Street: early years in practice, 46.
Gowers, Sir William, 27, 126: letters from, 162, 170.
Grant Medical College, Bombay, 317.
Greenfield, Prof., 51.
Grünbaum, Prof., 110, 142, 194.
Gull, Sir William, 54.
Gunshot wounds, heavily infected, treatment of, 289: gunshot wounds of head, 290.
Guy de Chauliac, on the perfect surgeon, 31.

H

Hadden, Dr. W. B., 58.
Haden, Charles, 3.
—— Sir Francis, 3, 7.
—— Thomas, 3.
Hæmostasis by application of living tissue, 210.
Halle, University of, 152.
Halliburton, Prof., 61.
Hankin, Dr. E. H., 145.
Harborough Division: Horsley's candidature, 200, 203-208, 255.
Harcourt, Mr. A. G. Vernon, 174.
Hardy, F. D., 5, 10.
Harley, Prof. Vaughan, 159.
'Harness's electric belts': legal action, 157.
Harris, Dr. Butler, 152, 157.
Hartley, Sir William, 238.
Hayler, Mr. Guy, 247, 249, 252.
Head, Dr. Henry, 171, 175.
Health, Ministry of, 211, 255.
Heath, Mr. Christopher, 145, 264.
Heidenhain, Prof., 149.

Herringham, Sir Wilmot, 201.
Hey Groves splint, the, 303.
High Row, Kensington, 4.
Hill, Dr. Leonard, 153.
Hine, Bishop, 29.
Holidays, 125, 265, 307.
Holmes, Dr. Gordon, 186.
Home-life, 273.
Hooper, Dr., 111.
Hoppe-Seyler, Prof., 20.
Horsley, Gerald, 4, 10, 142, 262.
—— John Callcott, 3-8, 11, 26.
—— Mrs. J. C., 7.
—— Lady, 48, 50, 88, 128, 204, 265.
—— Capt. Oswald, 152, 305.
—— Miss Pamela (Mrs. Stanley Robinson), 297, 303, 306, 320, 330, 334.
—— Capt. Siward, 139, 208, 304.
—— Miss Sophy, 3, 41.
—— Sir Victor. Childhood and early years, 3-10: Cranbrook School, 11-14: medical student, 15-36: house-surgeon, 36-40: surgical registrar, 43: engagement, 48: work at Brown Institution, study of thyroid gland, and of rabies, 50-89: study of localisation of function in brain, 90-113: Hospital appointments, 116: first operation at Queen Square, 120: first removal of tumour of spinal cord, 125: marriage, 129: at Berlin (1890), 138: Royal Society medallist, 152: at Toronto (1906), 183: at Berlin (1910), 196: Lannelongue Prize, 199. Work of professional politics: the Medical Defence Union, the General Medical Council, the British Medical Association, the National Insurance Act, *etc.*, 212-229. Work of national politics: female suffrage, and other measures of reform, 195-229. The fight against alcohol, 230-254: ethical teaching, and Brotherhood addresses, 255-262. Hospital practice and private practice; holidays; and the home life at 25 Cavendish Square, 263-281. The War: Horsley in London, and at the British Hospital, Wimereux, 285-294: Egypt, Gallipoli, Mersa Matruh, 294-312: India, 313-316: Mesopotamia, 318-340.
—— Col. Walter, 4, 24.
—— William, 3.
Hospitals: less alcohol given, and more milk, 231.
House-surgeoncy, 36-40.
Housing and alcoholism, 191.
Howells' 'A Chance Acquaintance,' 48.
Howitz, Dr., 67.
Howse, Sir Neville, 302.
Huddersfield: Horsley chosen as Liberal candidate, 208.
Hughes Bennett, Dr., 115.
Hughlings Jackson, Dr., 94, 101, 107, 120, 161, 180, 193.
Huguier's experiments on effects of projectiles, 155.
Hunter, John, 280.
Huxley, Dr. H., 265.
Hygiene and temperance to be taught in schools, 224, 235.
Hyndman, Mr. Francis, 198.
Hyperpyrexia in cerebral cases, 141.

I

India, 314-318.
Indian Field Ambulances, 322, 336.
—— Medical Service and Government of India, 310, 317, 331.
—— Stationary Hospital, 61st, 323: 12th, 329.
Intensive treatment against rabies, 70, 77.
'Internal capsule,' the, 104.
International Medical Congress, Berlin (1890), 138: London (1913), 201.
International Physiological Congress, Cambridge (1898), 165.
Introductory addresses, 141, 158, 159, 171.
Italian Society of Neurology, 200.
Italy, a holiday in (1882), 45.

J

'Jacksonian epilepsy,' 94, 101, 124.
Jameson, Sir Starr, 29.
Jenner, Sir William, 126.
Johne's disease of cattle, 51.
Johns Hopkins Hospital, 187.
Joyce, Dr. Thomas, 16.
Jugular vein: ligature, to prevent embolism, 121.

K

Karslake, Mr. Frank, 84.
Keen of Philadelphia, Dr., 141, 164.
Keynes, Mr. J. M., 242.
Kidd, Dr. Percy, 126.
King-Hall, Admiral Sir George, 248.
Kingsley, Charles, 24.
Kitchener, Lord, 288.
Knight, General, 318.
Knighthood, honour of (1902), 170.
Kocher, Prof., 57, 64, 155.
Kraepelin's experiments with alcohol, 231.
Kramer, Dr. S. F., 154, 288.
Krause, Prof., 165.

L

Lambourne, Lord, 186.
Lane, Sir Arbuthnot, 121.
Lane-Claypon, Dr. Janet, 265.
Lankester, Sir E. Ray, 45.
Lannelongue, Dr., 141, 199.
—— Prize, 199.
Larynx, central motor innervation of, 110-112.
Lateral sinus, septic thrombosis of, 121.
Lees and Raper Lecture, 170, 232.
Leighton, Lord, 45.
Leipzig, visit to (1881), 41.
Leith, Prof., 125.
Le Mare, Capt., H.M.S. Delta, 295.
Lendon, Dr. Alfred, 15, 18, 287.

Leontiasis ossium, 157.
Levy, Dr. Alfred, 175.
Leyden, Prof., 153.
Linacre Lecture, 110, 193.
Lister Institute, 53.
—— Lord, 69, 236, 259, 279.
Lodge, Sir Oliver, 15.
Loewenthal, Dr. Max, 164.
Logie, Mr. John, 267.
London, rabies and hydrophobia in, (1884-1890), 78-81.
Long, Mr. Walter, 87.
Lowenstein, Miss, 235.
Luxford, Lt.-Col., 309.
Luxor, 307.

M

McCarrison, Colonel, I.M.S., 303, 305, 318, 326.
McDowall, Major, 295.
Macewen, Sir William, 118.
McGrigor, Sir James, 250.
McKenna, Mr., 204.
Mackenzie, Dr. Hector, 66.
Mackworth, Major, I.M.S., 338.
MacNalty, Dr. A. Salusbury, 113, 143, 176, 191, 243.
Magnus of Christiania, 179.
—— Sir Philip, 15, 197.
Manifold, Colonel, I.M.S., 310.
Mann, Dr. Gustav, 176.
Marchi's method, 171.
Marchiafava, Prof., 45.
Marinesco, Dr. Georges, 123.
Marshall, Prof. Alfred, 242.
—— Mr. John, 36, 49.
Marten, Dr. R. H., 27, 40, 43.
Martin, Prof. Sidney, 29, 160.
'Mass meeting' at Queen's Hall (National Insurance Act), 227.
Matthews, Pte. J. R., 298.
Maudsley, Sir Henry, 37, 309.
Mauritius, rabies in, 74.
May, Mr. Edward, 301.
—— Dr. Otto, 196, 228.
Medical Acts, the, 164, 165, 215.
—— Companies, registration of, 219.
—— Defence Union, 213-216.
—— Licensing Bodies, 219.
—— Research Club, 144, 145.
Medicated wines, the trade in, 246.
Medico-ethical Societies, 171.
Medico-legal Society, the, 191.
Meningitis, chronic spinal, 191.
Mernetsch, Staff-Surgeon, 251.
Mersa Matruh, Horsley at, 304, 311.
Mesopotamia, 318-340 : Indian Government Commission, 317, 320, 323 : British Government Commission, 323, 336 : at the Front, 322, 336.
Microcephalic idiocy, operative treatment of, 141.
Midwives, registration of, 168, 212, 218.
Millais, Sir Everett, 84.
Mitchell Banks Memorial Lecture, 289.
Money, Dr. Angel, 29.
'Morbid Anatomy' *versus* Experimental Pathology, 144.
Motor centres, the nature of, 116, 193.
Motoring expeditions, 264.
Mott, Sir F. W., 28, 29, 175, 193.
Moullin, Mr. Mansell, 21.
Mudros, Horsley at, 303.
Munk, Prof., 97, 197.
Murray, Prof. George, 65.
Muzzling Order, the, 87.
Myxœdema, 54-67.

N

National Insurance Act, 224-229.
Navy, reduced use of rum in the, 249.
Neale, Dr. W. H., 18, 264.
Nerve-energy, Horsley's measurement of, 166.
Nerve-stretching : Mr. Marshall's Bradshaw Lecture, 49.
'Nervi nervorum,' Horsley's paper on (1884), 50.
Nervous Diseases Research Fund, 172.
Neuralgia, trigeminal, operative treatment of, 142, 165, 192.
Neurological Society, 115, 137, 144, 160, 282, 288.
Neurology, Experimental, 160.
Newman, Sir George, 236.
Nobel Prizes : Horsley proposed for one, 297.
Noble, Sir Andrew, 155.
Non-excitable zones of cortex cerebri, Horsley's theory of, 110.
Norman, Sir Henry and Lady, 289, 291.
North Islington : Horsley adopted as Liberal candidate, 200.
Nothnagel Lecture, 275, 297.
Nurses, registration of, 224.
Nursing Homes, 272.
—— the College of, 224.
—— under the Insurance Act, 210.

O

Œdema, experimental study of, 149.
Ogilvie, Capt., 251.
Oldfield, Mrs., 313.
O'Neills, the, 10.
Ophthalmological Congress, Oxford (1908), 188.
—— Society, 141, 188.
Opium traffic, National Conference against, 201.
Oppenheim, Mr., 42.
Optic neuritis in cases of tumour of the brain, 162, 184, 188, 192.
Orang-outang : experimental study of brain, 107.
Ord, Dr. William, 55.
Order of the Bath, honour of (1916), 297.
Orientation of points in space, clinical study of, 181.
Owens College, Manchester, 138.
Oxidation in living tissues, experimental study of, 152, 157, 163.
Oxygen, adjustment of cylinder to the Vernon Harcourt inhaler, 184.

P

'Pacinian bodies' in muscles, 164.
Page, Mr. Frederick, 126.
Paget, Miss, 72.
—— Sir James, 68-76.
Paralytic rabies in man, 77 : in rabbits, 82.
Paré, Ambroise, 117, 279.
Park Street, Grosvenor Square, the Horsleys' house in, 115.
Parker, Mr. Rushton, 18.
Parkin, Mr. Alfred, 158.
Pasteur, 27, 68-89.
—— Dr. William, 15.
Patellar knee-jerk, Horsley's paper on, 41.
Pathological Society, 144.
Patients, in Hospital and private practice, 267-271.
Pearce, Mr. Walter, 32, 35, 230.
Pearson, Prof. Karl, 239-243.
Peel Report, the, 234.
Penberthy, Prof., 84.
Penrose, Dr. Frank, 45.
Personation, not of itself a legal offence, 218.
Petren, Prof., of Stockholm, 297.
Philomathic Society, the, 30.
Phrenology, true and false, 188.
Phthisis, Horsley threatened with it (1881), 39.
Physical Deterioration, Commission on, 173.
Physiological Society, 144, 265.
Pierre Marie, on acromegaly, 123.
Pituitary body : experimental study, 123 : operation, 180.
'Pledge' of conditions of service under the National Insurance Act, 225.
Pleuro-pneumonia of cattle, Commission on, 85, 133.
Pollard, Mr. Bilton, 18.
Port Said to Bombay, 313.
Power, Mr. J. Danvers, 90, 170, 172.
Practice, addresses on, 141, 158.
—— falling off before the War, 272.
Prevention of Hydrophobia, Society for, 84-89.
Projectiles : experimental study of destructive effects, 152-157, 266.
'Pure Science' and Practice, 50.

Q

Quain's Anatomy, 44.
Quain, Sir Richard, 69.
Queen Square Hospital, 116, 120, 122 : cases at, 162 : difficulties of management, 169 : research fund, 172 : festival dinner, 186 : analysis of cases at, 201 : women admitted to its practice, 204.
Queen's Hall : suffrage meeting, 204 : 'mass meeting' of doctors, 227.
Qurna (Mesopotamia), 321.

R

Rabbit's ear : reflex movement of, 178.
Rabies (hydrophobia), 68 89.
Radcliffe, Dr., 142.
Radium, experimental study of, 199.
Ramon y Cajal, Dr., 193.
Ranvier, Dr., 149.
Reay, Lord, 68.
Rebus of the little horse, 129.
Reissner's fibre in the brain of the monkey, 189.
Representation and re-representation, 179, 181.
Research Defence Society, 188.
Respiratory failure preceding heart failure in cerebral cases, 153-157.
Responsibility of Manhood : a Brotherhood address, 257.
Reverdin, Prof., 57.
Richet, Prof., 90.
Richmond Park : 264 deer with rabies (1886-87), 81.
Ridsdale, Mr., 316.
Robinson, Captain, 291.
—— Colonel, 295.
Rogers, Sir Leonard, 237.
Roman Defences of South-East Britain, lecture on, 167 : the Great Roman Wall, 275.
Romanes, Prof., 84, 139.
Rome in 1882, Horsley's account of, 46.
Roscoe, Sir Henry, 69, 70.
Rose, Mr. William, 165.
Rousay, holidays at, 266, 267.
Roy, Prof., 51.
Royal Prussian Academy of Sciences, 196.
—— Society : nomination, 72 : election, 123 : gold medal, 152.
—— —— of Science of Upsala, 200.
Rum ration, the, 246-251.
Russel, Dr. Colin, 183.
Russell, Dr. J. Risien, 164, 178, 194, 264.
Russian Surgical Society, 187.
Ryle, Dr. R. J., 242.

S

Sachs, Prof. Ernest, 190.
Sainsbury, Dr. Harrington, 30.
Saleeby, Dr., 251.
Sandwith, Colonel, 307.
Sargent, Mr. Percy, 117.
Savage, Sir George, 165.
Savill, Dr. Agnes, 200.
Schäfer, Mrs., 33, 44, 47-50, 72.
—— Sir E. Sharpey, 17, 59, 94, 96, 115, 128, 188.
Schiff, Prof., 59, 61, 64, 123.
School children, medical care of, 223, 229 : teaching of hygiene and temperance, 224, 236-238 : dental clinics, 234.
'Seat of the soul,' the, 90.
Semon, Sir Felix, 58, 95, 110, 128, 138, 197.
'Septic bacteria,' Horsley's report to Local Government Board, 44.
Seventeenth General Hospital, 303, 306, 307, 309.
Shaik Saad (Mesopotamia), 323.
Shaw, Mr. Bernard, 191.
Sheffield Medical School, 158.

Sherran, Major, 290.
Sherrington, Prof., 51, 110, 192, 194.
Shuter, Dr. G. P., 156.
Silk, Dr. J. F. W., 18.
Simla, 316, 318.
Sloggett, Sir Arthur, 289.
Smoking, arguments against, 23, 46.
Société de Chirurgie de Paris, 157, 199.
Soury, Prof., 90.
Southampton to Alexandria, 295, 296.
Spencer, Mr. Walter G., 95, 137, 138.
Spinal cord: experimental study of, 134-136, 139: removal of tumour from, 126: compression-myelitis, 149: chronic spinal meningitis, 191.
Spitzka, Dr., 188.
Starling, Prof., 151.
State-regulation of vice, 201, 210.
Stereognosis, clinical study of, 194.
Stereotaxic apparatus, R. H. Clarke's, 189.
Stone Age, trephining in the, 123.
Storry, Mr., 167.
Students' Societies, Univ. Coll., 18, 24.
Sturge, Dr. Mary, 229, 235-237, 243, 287, 303.
'Surgical cases' and 'medical cases,' 145, 170.
Surgical Registrarship, 43, 47.
Surrey, rabies in, 79.
Swayne, Mr. Martin, 340.
Sympathy in Public Affairs: a Brotherhood address, 257.

T

Tactile sensation, clinical study of, 175.
Tænia pontis, experimental study of the, 181.
Tait, Mr. Lawson, 214.
Taxation of Land Values, Association for, 207, 275.
Taylor, Mr. Everley, 162.
—— Dr. James, 141.
Temperance: early lectures on, 250: National Temperance League, 231: British Medical Temperance Assoc., 231: Internl. Assoc. of Abstaining Physicians, 239: National Temperance Federation, 246: Irish Temperance League, 239: True Temperance Assoc., 251: British Women's Temperance Assoc., 192: 'Temperance breakfasts,' the, 234.
Temperature: difference between two sides of the body, in cases of injury to the brain, 137.
Thane, Sir George, 17.
Thiele, Dr., 170.
Third London Hospital, 286.
Thompson, Dr. Seth, 3.
Thyroid gland, the, 54-67.
Titles, the use of medical, 218.
Tomes, Sir Charles S., 217.
Tooth, Dr. Howard, 201.
Topognosis, clinical study of, 175, 181.
Toronto Meeting, Brit. Med. Assoc. (1906), 183.
Torticollis, operative treatment of, 164.
Tracheotomy, a case of, 37.
Trade-unions and Professions, 213 223, 228.
Trained Nurses, National Council of, 209.
Transplantation of thyroid tissue, 61, 64.
Tree of Knowledge (Mesopotamia), 321.
Treherne, General, 325, 326, 332, 336.
Trephining, prehistoric, 123.
Trigeminal nerve, mesencephalic root of, 196.
—— neuralgia, operative treatment of, 142, 165, 192.
Trotter, Mr. Wilfred, 161.
Trypanosomes, early study of, 45.
Tubby, Colonel, 301.
Tubercle and tuberculin, 40, 44: tuberculosis in cattle, 134.
Tubercular retinitis, early study of, 28.
Tumours, early experimental study of, 43.
Turner, Dr. Aldren, 178.
—— Mr. Edward B., 209.
—— Major Grey, 339.
—— Mr. J. Sidney, 87, 89.
Tuke, Mr. William, 32, 39.
Twenty-first General Hospital, 289, 294-300.
Twort, Mr. F. W., 51.
Twynam, Dr. G. E., 40.
Tyndall, Prof., 27, 68, 84, 127.
Typhoid, protective treatment against, 296, 299.

U

Universities, purposes and maintenance of, 172.
University College, debating societies, 18, 24, 30, 46: Department of Pathology, 43, 116, 159: Department of Experimental Neurology, 160.
—— College Hospital, 27, 36, 43, 114, 145, 168, 179.
—— of London: examinations, 41: Senate, 163: Parliamentary representation, 197.
Unregistered places (Cruelty to Animals Act), 176.

V

Venereal diseases, 173, 209.
Vessale, Dr. G., 65, 66.
Veraguth, Dr., 166.
Veterinary surgery, 51, 269.
Villa Yasmin, 301.
Villemin's study of tuberculosis, 78.
Virchow, Prof., 285.
Virchow's Festschrift, 142.
'Virus fixe' of rabies, 83.
Vizards, the, 10.

W

Waldeyer, Prof., 138, 197.
Waller's Law, 171.
Walrus, brain of, 190.
Walter, Miss Elvira, 4.

Wanhill, Major, 318.
War Office: Horsley's memoranda (1914), 288.
de Watteville, Dr., 115.
Waugh, Dr. H. D., 30.
West, Mr. C. E., 200.
West London Med. Chir. Society, 192.
Whitaker, Mr. Smith, 226.
Whitehead, Sir James, 77.
Whitelegge, Sir Arthur, 46, 77.
—— Lady, 5.
Whitmore, Mr. Charles A., 88.
Willcox, Colonel, 325.
Willesley, 5-14, 22, 48, 326.
Williams, Dr. Dawson, 29.
Willingdon, Lord and Lady, 314, 316.
Wimbledon Medical Society, 175.
Wimereux, 290-294.
Wirgmans, Dr., 168.
Woodhead, Sir George Sims, 139, 183.
Wooldridge, Prof., 144, 149, 151.
Women's Liberal Association, 292.

X

x-ray apparatus, deficient in Egypt (1915), 300, 301.

Y

Yeo, Dr. Gerald, 94.

Z

Zoological Gardens, 190, 237, 274, 275.

Printed by T. and A. Constable, Printers to His Majesty
at the Edinburgh University Press

867
Rdo

1.Ea.493.
Sir Victor Horsley : a study of1920
Countway Library AIS1383
3 2044 045 126 414

Date Due

4 DEC '65 CLM

APR 12 1985

-5

1.Ea.493.
Sir Victor Horsley : a study of1920
Countway Library AIS1383
3 2044 045 126 414